



REPORT
OF
THE DAMODAR VALLEY CORPORATION
ENQUIRY COMMITTEE



(1952-53)

3rd June 1953

CONTENTS

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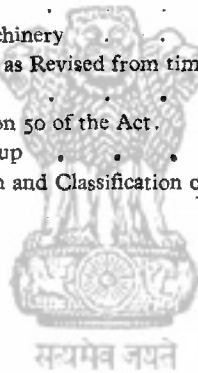
	PAGES
CHAPTER I.—INTRODUCTORY	I
Appointment of the Committee	1—3
Visits to Other River Valley Schemes	3
Discussions and Consultations	3—4
Period of Enquiry	4
Plan of the Report	4—5
CHAPTER II.—HISTORICAL	6
The Damodar and its Problems	6
Flood Protection Measures	6—7
The 1943 Flood and after	7—10
Mr. Voorduin's Preliminary Memorandum	10—12
The U.S.A. Technical Mission	12
The Scheme Progresses	12—13
The Corporation Takes Shape	13
The Damodar Valley Corporation Bill	13—15
A Broad Outline of the Act	15—17
CHAPTER III.—LAND RECLAMATION AND REHABILITATION WORKS UNDERTAKEN BY THE DAMODAR VALLEY CORPORATION	18
Nature of Problem	18
Resettlement Policy	18—21
Agency of Resettlement	21—22
Method of Payment of Compensation	22—24
Resettlement Colonies	25
Land Reclamation	25—26
Costs of Land Reclamation	26—29
Salary of the Director of Rehabilitation	29
Staff	30—31
Salaries	32
Sanction of Posts	32

II

CHAPTER IV.—THE CHANGES IN THE DESIGN AND CONSTRUCTION FEATURES OF THE TILAIYA DAM	33
Preliminary	33—35
Changes in Design and Construction Features	35—38
CHAPTER V Omitted	
CHAPTER VI.—THE PLANNING AND PURCHASE OF STORES AND EQUIPMENT FOR WORKS ON DAMODAR VALLEY CORPORATION AND THE PROCEDURE THERE FOR	39
Preliminary	39
Planning of Equipment and Stores	39—40
Planning of Stores and Equipment by the Corporation	40—41

	PAGES
Purchase of Stores and Equipment	41
Corporation's Purchase Procedure	42—43
Utilisation of Government Agencies for Purchases	43—48
Standardization	48—49
Agency of Inspection	49—53
 CHAPTER VII.—THE APPOINTMENT OF A CHIEF ENGINEER FOR THE DAMODAR VALLEY CORPORATION	 54
Introductory : Importance of Chief Engineer	54
Search for a Chief Engineer: First Phase May, 1948—March, 1949	54—55
Bargaining for Chief Engineer : March—July, 1949.	55—60
Difficulties of Dollar Exchange	60—62
The Prime Minister Helps	62
Chairman DVC's personal Efforts in America	62—63
Twenty Months Elopse Without a Chief Engineer : Public Opinion Hardens	63—64
Search for an Indian Chief Engineer	64—65
Last Phase : Search for a Chief Engineer Ends : Mr. Komora—Appointed—DVC Censured	65—67
The Estimates Committee's Criticism Considered	67—70
Conclusion	70
 CHAPTER VIII.—THE ADEQUACY OF THE DAMODAR VALLEY CORPORATION ACT 1948—Introductory	 71—72
Why a Public Corporation	72—73
Drawbacks of a Departmental Agency	73
Other Experiments	73—76
Implications of Acceptance of the Corporation Idea : Limited Governmental and Parliamentary Control—Limitations on Powers of Corporations Envisaged	76—79
Constitution and Membership of the Damodar Valley Corporation	79—80
Strength of the Corporation	80
Qualifications of Members	80—83
"Policy-making" versus "Functional Body"	83—84
Appointment of Certain Superior Officers	84—85
Other Limitations on the Autonomy of the Corporation : Governmental and Parliamentary Control	86—87
Financial Provisions	87—88
Audit and Accounts	88
Advisory Committees	88—92
Functions of the Corporation	92—93
Priorities to be fixed by Central Government.	93
Future set-up for Large River Valley Schemes Envisaged by Estimates Committee	94—96
Land Acquisition	96—97
 CHAPTER IX.—ORGANISATIONAL SET-UP OF THE DAMODAR VALLEY CORPORATION—Introductory	 98
Organisational History	98—99
Administrative Set-up	99—100

	PAGES
Engineering Set-up	100—102
Foreign Personnel	102—203
Soil Conservation Department	103
Electrical Department	103—104
Legal Division	104
Personnel Policy	104—105
Headquarters of the Corporation	105—107
General	107—108
CHAPTER X.—CONCLUSION AND ACKNOWLEDGEMENTS	109
Acknowledgements	110
CHAPTER XI.—SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS	111—119
Index Map Showing Damodar Valley Installations	
APPENDICES	
I. Copy of Government of India Resolution setting up the Committee	120—121
II. Extracts from the Financial Adviser's Reports	122—123
III. Committee's letter on the Interpretation of the Terms of Reference, and Government's Reply	124—125
IV. List of Witnesses	126—127
V. Average Useful Life of Machinery	128—132
VI. Estimates of Major Projects as Revised from time to time	(omitted)
VII. Benefits	133—135
VIII. Draft Amendment of Section 50 of the Act.	136—137
IX. Present Organisational Set-up	138—148
X. Abstract of the Organisation and Classification of the Personnel	149—152



CHAPTER I

INTRODUCTORY

Appointment of the Committee

In accordance with the recommendations made in the Fifth Report (1951-52) of the Estimates Committee of Parliament, the Government of India in the Ministry of Irrigation and Power set up a Committee consisting of Sarvashri P. S. Rau, I.C.S., V. D. Dantyaagi, S. B. Capoor,* I.C.S., G. R. Garg and B. D. Nanda, Member-Secretary, with the following terms of reference by a Resolution, dated the 20th September, 1952 (see Appendix I) to examine and report upon certain matters relating to the execution of the Damodar Valley Project with a view to achieving the most economical and expeditious development of the Damodar Valley:—

- (i) Land reclamation and rehabilitation works undertaken by the Damodar Valley Corporation.
- (ii) The changes in the design and construction features of the Konar and Tilaiya Dams; the award of contracts and the rates for various items of works.
- (iii) The planning and purchase of stores and equipment for works on Damodar Valley Corporation and the procedure therefor.
- ** (iv) The appointment of a Chief Engineer for the Damodar Valley Corporation.
- (v) The adequacy of the Damodar Valley Corporation Act, 1948, and the organisational set-up of the Corporation.

2. We assembled in Delhi on the 15th October, 1952, and were engaged in the beginning in securing office accommodation, collecting staff and office equipment.

3. At our first meeting we considered at some length our terms of reference. Although we were appointed in pursuance of the recommendations of the Estimates Committee of Parliament, it appeared that that Committee had dealt with several matters which on a strict interpretation of our terms of reference were beyond the purview of the Committee. It was, therefore, thought that clarification of the terms of reference was necessary. A reference was accordingly made to the Ministry of Irrigation and Power who, while

*Replaced by Shri B. N. Lokur with effect from the 30th October, 1952.

**Subsequently added, *vide*, Ministry of Irrigation and Power Resolution No. 30 (1) Adm/52, dated the 20th January, 1953.

confirming our interpretation of the terms of reference, added that we should include in our investigation of land reclamation and rehabilitation problems the points dealt with in the two-six monthly reports of the Financial Adviser to the Damodar Valley Corporation for the periods ended 31st July, 1951, and 31st January, 1952. Extracts from these reports will be found in Appendix II and copies of correspondence with the Ministry in Appendix III.

4. In the course of our studies, we felt that the question of the appointment of a Chief Engineer for the Corporation was of such crucial importance that it largely influenced the fortunes of the Corporation and that it should, therefore, be dealt with in detail as an express term of reference instead of in a summary and indirect manner under the last term of reference. Accordingly, at the suggestion of the Committee, the Government of India included, by Resolution, dated the 20th January, 1953, "The appointment of a Chief Engineer for the Damodar Valley Corporation" as a specific term of reference.

5. Soon after the Committee started work, Shri S. B. Capoor, I.C.S. unfortunately fell ill suddenly and proceeded on leave, and was replaced by Shri B. N. Lokur, Deputy Secretary to the Government of India, Ministry of Law with effect from the 30th October, 1952.

6. The Committee invited through the Press the views of those members of the public who were interested in the matters remitted for investigation by the Committee. As the enquiry was of a somewhat technical nature, no formal questionnaire was issued to the general public. Written questions were however put to a large number of persons who had knowledge of different aspects of the investigation.

7. The numerous files and papers required by the Committee had to be obtained from the Ministry of Irrigation and Power and this took time. After requesting the Ministry to supply the papers we moved to Calcutta, the headquarters of the Corporation, and, after preliminary discussions of the terms of reference and the recommendations of the Estimates Committee with the Chairman, Members and senior officers of the Corporation, we undertook a ten-day inspection tour of the Damodar Valley, visiting the Rhondia Headworks, the Barrage and Irrigation works at Durgapur, the Maithon and Panchet Hill dam sites, the Chief Engineer's Offices at Maithon including the Soil Testing Laboratory and the Central Workshop, the Konar Project, the Bokaro Thermal Station, the Bokaro Barrage, the Govindpuri Nai Basti where displaced persons from Govindpuri village were being settled, the sites under reclamation at Banaso, the

Tilaiya Project, the offices of the Rehabilitation and Development and Soil Conservation Departments at Hazaribagh, the Deochanda Experimental Farm, the resettlement colonies at Mouzas Bachhai and Gauria Karma, the Charwa reservoir project, the Hotwar Estate and the Design Office at Ranchi. During the tour of the Valley, we examined the officers in charge of the various works and had also discussions with the representatives of the Kuljian Corporation consulting engineers for the Bokrao Thermal Station, and of Messrs. Hind-Patel and a Swiss firm Messrs. Gruner Bros., contractors and consulting engineers respectively for the Konar Project.

8. The Committee paid a short visit again to Maithon, Konar, Bokaro and Tilaiya in the middle of January, 1953, to clear up certain outstanding points. During this visit, we examined Mr. Eduard Gruner of Gruner Bros., and Mr. A. M. Komora, Chief Engineer of the Corporation.

Visits to other River Valley Schemes

9. In order to obtain some idea of the different methods of approach that are being tried out in the country, the organisation of the various project authorities, and their speed of construction, the Committee visited the Bhakra-Nangal Project in the Punjab, the Hirakud Project in Orissa, the Vaitarna dam near Bombay and the Lower Bhavani dam in Madras. The Bhakra-Nangal Project furnishes an example of a large scale undertaking executed by the State Public Works Department, under the supervision of an Inter-State non-statutory Control Board, with the help of a number of foreign engineers and technicians. The Hirakud Project is a large enterprise executed directly by the Central Government in accordance with the P.W.D. Code, although lately a non-statutory Control Board has been set up. The special feature of the Vaitarna dam is that it is completely mechanised and is almost exclusively manned by Indians. The Lower Bhavani Project is organised by a single executive engineer under the guidance of the State Chief Engineer where the lowest rates in India are said to be in force. This claim, however, is not undisputed.

Discussions and Consultations

10. The Committee obtained the views, either by the issue of a formal questionnaire or by personal discussion or by both, of a large number of persons, including the Chief Minister of West Bengal, the Irrigation Minister of Bihar and officers of the Government of Bihar, Shri N. V. Gadgil, M.P., formerly Minister of Works, Mines and Power, Shri V. Narahari Rao, Comptroller and Auditor General of

India, Dr. M. N. Saha, M.P., Shri B. K. Gokhale. I.C.S. (Retd.), formerly Secretary, Ministry of Works, Mines and Power. Shri C. C. Desai, I.C.S., till lately Secretary, Ministry of Works, Housing and Supply, Shri A. N. Khosla, I.S.E., Additional Secretary, Ministry of Irrigation and Power, Shri A. D. Gorwala, I.C.S. (Retd.), Shri D. L. Mazumdar, I.C.S., formerly Joint Secretary in the Ministry of Works, Mines and Power. Shri N. M. Buch, I.C.S., Director General of Supplies and Disposals, Shri A. R. Venkatachari, I.S.E. (Retd.), Member of the D.V.C. Board of Consultants, Shri S. Ratnam, Joint Secretary, Ministry of Finance, Sardar Man Singh, I.S.E., and officers of the Central Water and Power Commission. Discussions were also held with the representatives of the Associated Exports Imports Corporation and the Engineering Association of India regarding the purchase policy and procedure of the Corporation. A list of the witnesses examined appears in Appendix IV.

Period of Enquiry

11. The Committee were originally required to submit their report within two months of their formation, i.e., by the 15th December, 1952, but as we had to make arrangements even for our office accommodation, staff, etc., we took some time to settle down to work. The collection of the very large number of relevant records from the Ministry of Irrigation and Power and from the Corporation also took time. Examination of witnesses, who lived in different parts of the country, could not be arranged on the desired dates. The evidence had to be shifted and analysed and separate questionnaire had to be prepared for the more important witnesses who in some cases took considerable time to submit replies. In addition, we had to tour various parts of the country. Shri B. N. Lokur, one of our members, was also on the Commodity Control Committee, and had to be away off and on in connection with his duties on that Committee. With effect from the 10th March, 1953, the Chairman was appointed to be in sole charge of the PEPSU administration as Adviser to the Rajpramukh, in addition to his duties, and was, therefore, unable to devote more than a few hours a day to the work of the Committee. Add to these, the inherent technical and other complexities of the enquiry. We were thus unable to complete our work before the end of May, 1953, but all the members except the Member-Secretary were allowed to join their normal duties on the 1st May, 1953.

Plan of the Report

12. This report is divided into eleven chapters. The first is introductory and deals with appointment of the Committee, other formal matters and the procedure followed by us. Chapter II gives the

historical background of the Damodar Valley Project. Thereafter each term of reference is taken up and one chapter is devoted to it except that Terms Nos. II and V are dealt with in two separate chapters each. Chapter X is devoted to general appraisal and to acknowledgements. The final chapter gives a summary of conclusions and recommendations and this is followed by an index map showing the Damodar Valley installations and a series of appendices number-in ten giving statistical and other information.



CHAPTER II

HISTORICAL

The Damodar and its Problems

The river Damodar rises in west Bihar at an elevation of approximately 2,000 feet above sea level and after flowing generally in a south-easterly direction for a total length of 336 miles (180 miles in Bihar and 156 miles in West Bengal) joins the river Hooghly about 30 miles below Calcutta. Its principal tributary, the Barakar River, joins it before it leaves Bihar. The catchment area of the river is about 8,500 square miles, of which about 7,500 square miles are in the uplands and 1,000 square miles in the plains.

2. In its upper reaches in Bihar, the Damodar flows rapidly through rugged country eroding land and collecting silt. As it enters West Bengal, it deposits its silt along its banks and flows leisurely till it reaches the Hooghly. It is a seasonal river with a torrential flow during the rains and barely a trickle in the hot weather.

3. The River has earned a notoriety for its destructive propensities, it erodes Bihar and floods Bengal—with water and with sand—and causes much distress and loss in both the States: so much so, it has been aptly styled “the river of sorrows”.

Flood Protection Measures

4. The problem of taming the Damodar seems to have engaged attention for some considerable time. Early in the 18th century embankments were constructed on both the banks, from Silna to the mouth of the river, to protect the adjoining areas from floods. As these could not be efficiently maintained, it was decided in 1855 that twenty miles of the right embankment should be removed and the river allowed to spill on the right bank to relieve pressure on the left bank which protected important interests like the East Indian Railway, the Grand Trunk Road and the Port of Calcutta. Accordingly, between 1856 and 1859, twenty miles of the right embankment were removed. Thirty years later, another ten miles of the right bank were abandoned.

5. In 1863 the Government of India had the possibility investigated of flood control by means of reservoirs in the upper reaches of the river. The engineers recommended construction of controlling

reservoirs at four sites on certain tributaries of the river for diminishing the danger of floods. But as a greater measure of protection was considered desirable, a supplementary survey was carried out in 1866 and some more sites on the Damodar and the Barakar were selected for detention reservoirs which, apart from controlling the floods, would also provide irrigation and navigation facilities. In 1870 a tentative scheme with this object in view was submitted to the Secretary of State for India who declined to consider it on account of the financial risk involved.

6. The disastrous flood of 1900 again brought the question of flood protection to the fore and a scheme for the construction of three masonry dams at a cost of Rs. 60 lakhs was drawn up. This scheme was considered to be an irrigation project only, for which an investment of Rs. 110 per acre of reclaimed and benefited land was considered extravagant, and a decision was taken that it was more feasible to take *ad hoc* measures from time to time to repair the damage and alleviate distress caused by the floods. The subsequent high floods of 1907, 1909 and 1911 were apparently dealt with in accordance with this policy.

7. The 1913 flood—with a peak discharge of 6·5 lakh cusecs—causing wide breaches in the embankment and serious damage to the countryside, roused considerable public indignation and called for a revision of policy. Controlling reservoirs on the Damodar and the Barakar were again considered to be the only effective solution of the problem. In 1920 a revised scheme for the construction of the retentive basins was prepared but was again shelved on financial grounds. In 1932, the Anderson weir was constructed at Rhondia. Seven years later, the Bengal Legislative Assembly approved of the Damodar-Hooghly Flushing and Irrigation Scheme, but it was not pursued.

The 1943 Flood and After

8. A moderate flood—about half the size of the 1913 flood—breached the left embankment in July, 1943, and submerged the adjoining area to a depth of six to seven feet devastating many villages, causing serious breaches of the railway line necessitating diversion of traffic, by severing all communications, road and rail, between General Headquarters and the 14th Army for some weeks, throwing out of gear our defence arrangements during a critical period of the second World War, isolating Calcutta from the rest of India and dislocating normal life. This brought the problem of the control of the Damodar floods once more into the forefront. One of the first to draw public attention to it and insist on a comprehensive solution was the eminent scientist, Dr. M. N. Saha, M.P. The Government of

Bengal constituted a Committee known as the Damodar Flood Enquiry Committee under the chairmanship of the Maharajadhiraj of Burdawan with Dr. Saha as one of the Members to advise on permanent measures to control floods in the Damodar River and in particular to consider the utility of the earlier scheme of constructing flood-regulating reservoirs prepared in 1920. This Committee recommended the construction of concrete dams on the Damodar and its tributaries so as to hold 1·5 million acre feet of water at a cost of about Rs. 6 crores, of irrigation and flushing schemes on both the banks, costing Rs. 3·5 crores and afforestation and other measures to prevent soil erosion costing another Rs. 30 lakhs. It also recommended that in addition to flood retention, definite storage capacities might be allotted for generation of hydro-electric power and for irrigation purposes. The Committee expressed the view that it would be an advantage from the point of view of flood control and soil conservation, if forests and rivers of India were made the concern of the Central Government. The Government of Bengal accepted the Committee's report and appointed a Superintending Engineer to carry out further investigations and work out detailed measures.

9. In August, 1944, the Government of Bengal forwarded a copy of the report of the Damodar Flood Enquiry Committee to the Government of India for consideration. Mr. R. G. Casey, then Governor of Bengal, followed it up by a letter to the Viceroy dated the 7th September, 1944, in which he suggested that the water problem of Bengal should be comprehensively studied before it could be solved. He said that Bengal was essentially a water province, cut through and through by two of the mightiest river systems of India, the Ganga and the Brahmaputra, each with discharges of astronomical proportions in the monsoon period and yet this important problem had never been properly tackled, and suggested that the whole subject should be surveyed by high level experts in the various branches of irrigation, drainage and river control. He suggested that "a really high level man or men from, say, the United States" should be obtained and added: "I assume that there is no one in India who could advise us on the highest level". The United States were specially mentioned because the main progress in the engineering of river control schemes appeared to have been made there during the previous 20 years. Accordingly, the services of Mr. W. L. Voorduin, a senior engineer on the staff of the Tennessee Valley Authority, were obtained in spite of opposition from certain British interests, for a term of three years with the assistance of Lord Halifax, British Ambassador to America and Mr. Lilienthal, Chairman of the Tennessee Valley Authority. He was appointed hydro-electric member of the Central Technical Power Board.

10. The Government of India in a letter dated the 8th October, 1944, sent their considered views on the Bengal Flood Enquiry Committee's Report and on the questions raised by the Government of Bengal. They felt that the report by itself could not serve as a basis for solving the various problems of the Damodar. They therefore, proposed to the Government of Bengal and Bihar that in the interests of the co-ordinated economic development of the entire Damodar Valley, it was essential to examine the following aspects of the problem, not only from the point of view of Bengal but of the entire Damodar Valley:

- (a) Steam Power requirements of the coal-fields and the necessary supply of water to meet such requirements, or the requirements of industry situated there;
- (b) Hydro-electric possibilities (to be considered in relation to the Bihar thermal grid scheme and perhaps also to the Rihand Scheme in the Sone Valley in Western Bihar and East U.P.);
- (c) Irrigation aspects of the scheme and possibilities of assistance to agricultural development;
- (d) Navigation aspects—though it was doubtful if much could be done in this regard;
- (e) Future of the port of Calcutta;
- (f) The rise in land values, resulting from (b), (c) and (d) above;
- (g) Prevention of erosion and of disafforestation and possibilities of afforestation.

Having regard to the multi-purpose potentialities of the Damodar River Scheme, the Government of India felt that the quickest and most efficient way of solving these problems would be through the agency of a properly constituted authority on which the Central Government and the Governments of Bengal and Bihar were adequately represented. As a preliminary step they suggested to the two Provincial Governments:—

- (i) the setting up of an *ad hoc* committee to examine certain details of the scheme;
- (ii) submission of the report of the said committee to the Provincial Governments, the Central Technical Power Board and the Central Waterways and Irrigation Board for their views;

and (iii) co-ordination of further action in mutual consultation or in the alternative the holding of a meeting at which these points may be discussed.

11. The meeting envisaged above was held on the 3rd January, 1945. It was decided thereat that all the relevant information bearing on the co-ordinated development of the valley should be collected and a preliminary memorandum prepared by the Central Government's technical experts in full collaboration with the Provincial experts, setting out the prospects for a co-ordinated scheme for the multi-purpose development of the Damodar Valley.

Mr. Voorduin's Preliminary Memorandum

12. Mr. Voorduin prepared this preliminary memorandum presenting an outline of a tentative unified development plan for the Damodar Valley and describing in general terms the benefit which may be expected from flood control, irrigation, power, navigation and water supply.

13. On the basis of a design flood of one million cusecs, Mr. Voorduin planned a series of eight dams at Tilaiya, Deolbari and Maithon on the Barakar, at Bermoo, Aiyar and Sanolapur on the Damodar, on the Bokaro and on the Konar—with a hydro-electric power station attached to each dam, a barrage below Silna, a low diversion dam at Bermoo for hydel power generation, and a thermal power station with an installed capacity of 150,000 kW. The plan provided for an aggregate controlled reservoir capacity of 4.7 million acre feet, perennial irrigation for an area covering 7.6 lakhs acres and power at a peak-load 300,000 kW. Mr. Voorduin also indicated the possibility of providing navigation facilities and water supply. The total cost of the scheme was estimated to be Rs. 55 crores though it was clearly stated that the estimate was, in the absence of complete field investigations, "extremely rough and could serve no other purpose than that of obtaining an approximation of the magnitude of the capital expenditures required". It is necessary to emphasise this point as there was a tendency later on to forget it. It was expected that an annual charge of Rs. 8 per acre would suffice to meet the irrigation expenditure while the cost per unit of power delivered in bulk at load centres at 11 kW. would work out to about 0.24 annas per kW. The entire programme of construction was expected to take ten years. The scheme envisaged submersion of 106,000 acres of land and displacement of a fairly substantial population.

14. Mr. Voorduin observed:

"Some changes in the general plan may be made when additional data is obtained and final studies are undertaken,

but it is expected that such changes will not materially affect the scope of the development as now proposed. Furthermore, collection of additional data and preparation of final plans for each of the dam-sites selected, need not delay the start of construction work at some of the dam-sites which, because of their strategic location, will be needed in any plan of development finally adopted."

Mr. Voorduin concluded by recommending that:

"the task of continuing the planning, designing, constructing and operating the dams, reservoirs, waterways, power houses and transmission lines be entrusted to an Authority with powers and duties carefully delineated by the three Governments concerned" and that the "Damodar Valley Authority could be an example in the multi-purpose development of a watershed for India as the T.V.A. has been for the U.S.A."

15. Mr. Mathews, Chairman of the Central Technical Power Board, in approving Mr. Voorduin's plan, pointed out that although the population of the Valley was predominantly rural and largely engaged in agricultural pursuits, the plan of development covered a region which included many factors which provided scope for future industrial development. The area, it may be mentioned, is a mineral treasure house and rich in industrial potentialities; concentrated deposits are to be found of strategic minerals like iron, coal, copper, manganese, mica, bauxites, quartzite, etc. Recent investigations indicate the presence in the area of "a composite ore which has a unique combination of metallic and non-metallic constituents containing recoverable quantities of uranium and rare elements, copper, nickel, phosphorus, sulphur, titanium and gold. The other elements also present are vanadium, antimony, bismuth and lead. There is no doubt, therefore, that this is one of the most unique and wonderful ores produced by nature in the world and India ought to be proud of it"*.

Mr. Mathews stated that the project made it "absolutely essential that the entire water control and power generation features should be constructed and operated under a single unified administration". He was also of the opinion that:

"for efficient administration, and regardless of its originating sponsors, the Authority must be invested with a high degree of autonomy for conducting the undertaking".

*See article in Indian Journal of Power & River Valley Development, Vol. II, No. 11 (DVC Special Number), Calcutta, by Mr. V. R. Khedkar, R.M.S., Atomic Energy Commission and Director Indian Bureau of Mines.

As an *ad interim* arrangement, he suggested the appointment of a high-ranking Administrator to promote the furtherance of the project and the creation of the Authority. He also made it abundantly clear that a vast amount of engineering study and design work must be undertaken if the project were to proceed to the various phases of construction.

The U.S.A. Technical Mission

16. At the request of the Government of India, the State Department of the United States of America sent to India in February, 1946, a Technical Mission consisting of two eminent engineers, viz. Mr. Ross M. Reigel, and Mr. Fred C. Schlemmer, Head Civil Engineer and Project Manager respectively, of the Tennessee Valley Authority, to examine and advise on the scheme prepared by Mr. Voorduin. With them were associated two Indian engineers, Shri A. N. Khosla and Shri M. Narasimhaiya. The Mission visited Maithon, Panchet Hill, Tilaiya and Aiyar and also Krishnarajasagar in Mysore and Mettur in Madras. On an examination of Mr. Voorduin's Preliminary Memorandum, Mr. Riegel expressed the view that—

"It presents a well considered plan for as much utilization of the Damodar River for the combined purposes of flood control, irrigation and power generation as appeared practicable" and that "satisfactory and safe structures suitable for the general purpose of multi-purpose development can be constructed".

on the lines indicated by him. The Mission recommended immediate construction of a dam at Tilaiya so that the required flow could be maintained in the river during the construction of the Maithon Dam. They also gave priority, after Tilaiya and Maithon, to the construction of dams at Konar or at Bokaro and Panchet Hill. In the opinion of Mr. Schlemmer, the programme chalked out by Mr. Voorduin was "of a stature at least as large, or possibly, considerably larger than has previously been undertaken in India, or in other parts of the world" and that it was "entirely feasible and well within the range of possibility of accomplishment" in ten or more years' duration.

The Scheme Progresses

17. The meeting of the three Governments concerned held in August, 1945, considered Mr. Voorduin's Preliminary Memorandum and agreed that it justified further investigation of the multi-purpose aspect of the project. On the assumption that four dams at least would have to be constructed, it was decided to investigate Maithon and Aiyar. It was agreed that the construction of the first dam should commence in October, 1946. The meeting also agreed to a proposal for appointment of a high-grade non-technical Administrator for the scheme.

18. At a meeting held in April, 1946, the representatives of the three Governments considered the Voorduin report together with the comments of the American Technical Mission thereon. They were convinced of the desirability of pushing forward as rapidly as possible with the Damodar Scheme as a whole and accepted the proposals for the Maithon and Tilaiya projects as approved by the American Technical Mission and their Indian associates. They considered it necessary to postpone the commencement of construction of the Maithon dam till October, 1947, as it was not possible to obtain the consent of the two Provincial Governments and to enter into a firm contract with consulting engineers and contractors in time to be able to start construction in October, 1946. In the meantime, they recommended the early investigation of the possibility of making arrangements for the construction of the Tilaiya dam in advance of other projects. It was also decided to place the preliminary arrangements under an Administrator with the rank of Additional Secretary to Government pending the establishment of a properly constituted Authority. Such an Authority, the Provincial Governments agreed, was the most suitable agency for administering the scheme as they were unable to execute it themselves. Shri B. K. Gokhale, I.C.S., was accordingly appointed Administrator of the Damodar Valley Project in May, 1946, but when two months later he became Secretary to the Government of India in the Ministry of Works, Mines and Power, the post fell vacant and remained vacant till October, 1947, when Shri S. N. Mozumdar, I.C.S., was appointed Administrator.

The Corporation takes shape

19. A draft of the constitution of the Damodar Valley Corporation was prepared by the Government of India and considered by a Committee consisting of the representatives of the three Governments concerned. The final draft was approved by the three Governments in April, 1947, and the Governments of Bengal and Bihar undertook to have resolutions passed by their legislatures, as required by Section 103 of the Government of India Act, 1935, agreeing to the setting up of a Corporation.

20. The Corporation as envisaged was given considerable autonomy and the two Provincial Governments agreed to surrender to it their powers to enable it to discharge its functions effectively. Agreement was also reached regarding the allocation of costs.

The Damodar Valley Corporation Bill

21. The Damodar Valley Corporation Bill was introduced in the Constituent Assembly of India (Legislative) on the 1st December, 1947, was passed on the 18th February, 1948, and received the assent of the Governor-General on the 27th March, 1948

22. Proposing a reference of the bill to a Select Committee, Shri N. V. Gadgil, Minister for Works, Mines and Power, explained briefly the objects and the provisions of the measure. He described the disasters caused frequently by the Damodar floods and stated how the romance of the T.V.A., which ushered in an era; prosperity in the Tennessee Valley by taming the wayward Tennessee river, inspired the conception of the Damodar Valley Project which he hoped would bring in its wake the benefits of flood control, "water for irrigation, power for industry and employment all round". He said that when the scheme became a reality "a valley of death and destruction" would be turned into "a valley of prosperity and happiness". As regards the rehabilitation of displaced persons, he assured the House that those whose lands and houses would be acquired for the purposes of the project would be resettled "not in similar but in better surroundings" and they would exchange their "hovels for decent cottages, darkness for light and fanaticism for faith". Further it was the intention that model villages should be made available and every effort made as far as possible to see that those who were resettled did not feel themselves in some strange unknown world but would be resettled in fairly familiar circumstances. When it was sought to be made out that the scheme was not subjected to scrutiny or criticism by experts, the Minister assured the House that it had been fully realised that schemes involving millions of rupees must be proceeded with with all reasonable care and caution and that at every stage expert advice had been taken and that at every stage from designing to construction, from construction to utilization, expert advice, whether foreign or Indian, would be taken. In reply to a suggestion that the qualifications expected of the persons forming the Corporation should be prescribed, the Minister said that it was impossible to lay down in the statute what sort of people they should be and what educational and other qualifications they should possess and felt that men from any walk of life would do well if they possessed the following qualifications:

- (i) The highest integrity and incorruptibility.
- (ii) High intelligence.
- (iii) A clear conception of the economic development in India on modern scientific lines especially in the industrial and agricultural field and alignment of economic life on a co-operative basis.
- (iv) Fairly wide experience of men and affairs.

He told the House that it should not be impossible to find three top-ranking men who would have "the vision of a poet, the zeal of a pioneer and the capacity of a practical administrator". He added that

it was not the intention of the Central Government to interfere with the day-to-day administration of the Corporation and that control would be exercised in matters of policy only and that too consistently with the autonomy of the Corporation.

23. The Bill received a rousing reception from all sections of the House and speech after speech was made showering congratulations on the Minister for bringing forward such an epoch-making measure and the Bill was passed on an unprecedented wave of enthusiasm. But there appears to have been inadequate appreciation of the fact that we were launching on a grand experiment without much previous experience in this particular line, without sufficient technical personnel; that there might be pitfalls, that mistakes might be made and losses incurred. Had the legislature, and through the legislature the country, been warned that it would not be all plain sailing and **that we should be prepared for some delays, mishaps, inefficiency and losses**, the reaction to failures when they did occur would not have been so acute. As the impression was created that the millennium was round the corner, the country was naturally expecting to see the realisation of their hopes within three or four years. The fact is that the Government and the nation were in a hurry. There had been a war, there had been floods, there had been famine and starvation, the need for more food was desperate; on the other hand, we had ample natural resources, the Damodar Valley was a mineral treasure house and the potential demand for power for industrial purposes in the area was great. Here were ideal conditions for the successful execution of a project like the Tennessee Valley and one should be built with all possible speed. When difficulties cropped up, difficulties connected with paucity of engineers and technicians of all kinds, with obtaining machinery in time, with securing contracting firms of the requisite status, experience and technical knowledge, and mistakes and costly mistakes occurred, there was an unconscious tendency in some quarters to look for people to blame. This is not to say that all was well with the Damodar Valley Corporation. Far from it, as the sequel will show; but when the heat and dust of controversy have passed and the time comes to take an overall dispassionate view of the whole matter, it will be necessary to take into consideration the background, the circumstances in which the Damodar Valley Corporation came into existence, the difficulties against which they had to contend and the problems they had to tackle.

A broad outline of the Act

24. The Damodar Valley Corporation as constituted by the Act is a body corporate consisting of a Chairman and two other members, appointed by the Central Government after consultation with the Governments of West Bengal and Bihar.

25. In the discharge of its functions the Corporation is assisted by a Secretary, who is the chief executive officer, and a Financial Adviser, both of whom are also appointed by the Central Government. The Corporation is authorised to appoint such other officers and servants as it considers necessary.

26. The Corporation is empowered to appoint one or more Advisory Committees for the purpose of securing the efficient discharge of the functions of the Corporation, in particular for securing that these functions are exercised with due regard to the circumstances and requirements of particular local areas.

27. Within the Damodar Valley, the functions of the Corporation, enumerated in Section 12 of the Act, include, besides construction and management of dams, power houses and irrigation and navigation canals, "the promotion of afforestation and control of soil erosion in the Damodar Valley" and "the promotion of public health and the agricultural, industrial, economic and general well-being in the Damodar Valley and its area of operation". The Central Government may also direct the Corporation to carry out any of these functions in any specified area outside the Valley. The Corporation has all the powers necessary for the purposes of carrying out its statutory functions, including the power to acquire property, to construct dams, canals, barrages, power-houses etc. and to undertake the resettlement of the displaced population.

28. The total capital expenditure chargeable to the project is to be allocated between three main objects, namely, irrigation, power and flood control. Sums spent on other authorized objects are to be treated as common expenditure before allocation between the three main objects. The Governments of Bihar and West Bengal are responsible for the capital cost of the works constructed exclusively for irrigation in their respective States and share the balance of the capital cost under irrigation in proportion to their guaranteed annual off-takes of water for agricultural purposes. The total amount of capital allocated to power is shared equally by all the three Participating Governments. Capital up to Rs. 14 crores allocated to flood control is shared equally between the Central Government and the Government of West Bengal and the excess, if any, is to be the exclusive liability of West Bengal. Each Participating Government is to provide its share of the capital on the dates specified by the Corporation and in case of default the Corporation has the power to raise a loan to make up the deficit at the cost of the Government concerned. The profits and losses are to be determined object-wise and except for flood control are to be distributed between the three Participating Governments in proportion to their respective shares in the total capital cost attributable to each object. The capital

provided by each Participating Government is not repayable but carries interest at a rate to be fixed by the Central Government. The Corporation possesses the power to borrow money in the open market or otherwise.

29. Though the Corporation enjoys a high degree of independence in framing its own policy, plans and programmes, the Act provides for the exercise of control by the Central Government over its policies.



CHAPTER III

LAND RECLAMATION AND REHABILITATION WORKS UNDERTAKEN BY THE DAMODAR VALLEY CORPORATION

With this background, we shall now deal with the terms of reference seriatim. The first term of reference is concerned with the land reclamation and rehabilitation works undertaken by the Corporation.

Nature of Problem

2. If the construction of the reservoirs in the Damodar Valley will prevent floods and promote agriculture and the industrial development of an area of about 10,000 sq. miles, it will also submerge a number of villages and land of varying productivity in an area of approximately 170 sq. miles. It should be remembered that whereas most of the benefits associated with flood control and irrigation accrue to West Bengal, nearly all the land that is submerged by the reservoirs is situated in Bihar. It is understandable therefore that Bihar's special anxiety has always been to see that the displaced people, most of whom are aborigines, simple folk, receive at least fair, if not generous, treatment. It is only fair to add that both the Central Government and the Government of West Bengal were no less anxious that this shall be so.

Resettlement Policy

3. In the Preliminary Memorandum, Mr. Voorduin had indicated that:

"An enlightened policy demands that the responsibility of the agency constructing the dams does not end with the payment of compensation for this enforced evacuation of the land, but that new homes and, where required, instructions in new methods of gaining a livelihood should be given to the people".

The problem of resettlement was first discussed at a meeting of the Labour Department of the Government of India held on the 22nd April, 1946, presided over by the Labour Member at which, at the request of the Chairman, Mr. Schlemmer explained the procedure that was being followed by the Tennessee Valley Authority in regard to the rehabilitation of the displaced population. It was stated that

when land was acquired by that Authority, equitable value was paid to owners by way of compensation when their Population Relocation Service was unable to settle them on other land. The Tennessee Valley Authority also assisted the dispossessed peasants to purchase land at suitable places.

The question was then considered at a meeting of the representatives of the Central Government and the Governments of Bihar and Bengal held on the 23rd and 24th April, 1946, when it was decided that—

“The Governments of Bihar and Bengal accept as a matter of general policy :—

- (i) the payment of full and fair compensation to the dispossessed cultivators of the reservoir areas;
- (ii) the payment of this compensation, as far as possible, in kind, by giving land for land in lieu of cash compensation.

The Government of India is in full agreement with this policy.

4. At a similar meeting held on the 6th January, 1947, attended by the Member for Works, Mines and Power, the Premier of Bengal and the Bihar Minister for Irrigation, the problem of resettlement of displaced persons was further considered. The Government of Bihar urged that the principles of the Land Acquisition Act, 1894, could not apply to the submergence of an extensive area of some 200 square miles which would render a hundred thousand persons homeless. The affected area was mostly inhabited by aborigines. The communal life of these villages would thereby be disturbed destroying the very basis of their existence.

Both the Governments of Bengal and Bihar agreed at this meeting that the entire cost of resettlement should be charged to the scheme. It was also decided to entrust the responsibility for resettlement to the Government of Bihar. This was later given up. At a subsequent meeting held on the 26th April, 1947, the Member for Works, Mines and Power assured the Government of Bihar that the Corporation would bear all reasonable charges on account of resettlement and welfare of the displaced population.

5. While moving for a reference of the bill to a Select Committee on the 12th December, 1947, Shri N. V. Gadgil, Minister for Works, Mines and Power said :

“As regards the problem of resettlement let me confess that this is a very delicate problem. It is obvious that we are going to deprive one lakh of people not only of their

means of livelihood but we are taking them away from their homes, from the villages in which they and their ancestors have lived. But it is the intention that they will be given land for land as much as possible and, where it is not possible or where a particular individual does not want land, they will be adequately compensated. We have been very much familiar with the description that Indian villages are not well-planned, they are dirty, they are mere hovels, no amenities are provided in them. Here is an opportunity to translate some of the best conceptions which have been given expression to in the course of the last so many years by our social workers. They can resettle these people in their new habitation, in modern villages which will provide decent and pleasant houses, pleasant surrounding, playground, and schools." * * "I would not hesitate to call it" (the Damodar Valley) "a valley of death and destruction today and to say that when the scheme becomes a reality the valley will be turned into a valley of prosperity and happiness."

6. Eight members of the House spoke on the Bill at this stage of whom seven referred to the problem of displaced persons all enthusiastically endorsing the policy of Government.

While replying to the debate Shri Gadgil again made special reference to the question of resettlement and said:

"I want to assure my friend Mr. Jaipal Singh that every person who will be uprooted from the soil will be resettled, not in the same surroundings or similar surroundings, but in better surroundings. He will exchange his hovel for a decent cottage, darkness for light and fanaticism for faith. I want to assure my friend that the resettlement of the expropriated people will be the first charge on the attention, the energy and the finances of the Corporation. I think a clearer assurance than that is not necessary and I do not think my Hon'ble friend Mr. Jaipal Singh wants it either".*

Again,

"On the last occasion, I gave the assurance that land will be given for land and that where it is impossible or where it is not wanted, adequate compensation will be paid, and that those people who will be unsettled, expropriated

or uprooted, they will get cottages for hovels, honest means for doubtful living and faith for fanaticism. That is how I described it. I give the same assurance."**

Referring to "the spiritual aspect of the problem of rehabilitation" raised by Shri Jaipal Singh, the Minister assured that

"all attempts will be made as far as possible to see that those who are resettled do not feel themselves in some strange unknown world but that they will be resettled in fairly familiar circumstances."**

7. These repeated assurances given by Government in the Legislature, which were themselves based on the strong and unanimous demand of the two Provincial Governments concerned, constitute the considered policy of Government which the Corporation was bound to follow and has been following.

8. The Corporation gives cash compensation to those who desire it. Those who ask for compensation in kind are given land for land of equal productivity, and the classification of the land to be acquired as well as given in exchange is examined by the Land Acquisition Officer in the light of instructions given by the State Government. As regards houses, five standard types have been built, and displaced persons are allotted the type of nearly the same area as they occupied before displacement.

9. We now proceed to deal with the various points raised in the Fifth Report (1951-52) of the Estimates Committee of Parliament, as well as with the points raised by the Financial Adviser of the Corporation in his two half-yearly reports to the Government of India, for the periods ended the 31st July, 1951 and the 31st January, 1952.

Agency of Resettlement

10. The Estimates Committee, in para. 28 of their Report, state that they are—

"unable to understand why it was thought necessary to entrust the work to the Corporation whose hands were already full with other work connected with the construction of dams, etc. It could have easily been handed over to the State Governments concerned who had the necessary machinery for reclamation of land and distributing to the affected persons."

In view of the policy enunciated by the Government of India that "the resettlement of the expropriated people will be the first

** Constituent Assembly (Legislative) Debates, Vol. I, 1848, page 759.

charge on the attention, the energy and the finances of the Corporation",

the Corporation is responsible for the resettlement of the displaced population. There are certain advantages also in the same authority undertaking responsibility for construction of the reservoirs as well as resettlement, for co-ordination is thereby ensured. If one authority is responsible for the construction of the project and another for resettlement, difficulties are bound to arise. Furthermore, whereas the Corporation possesses the machinery and equipment necessary for reclamation of land, the State Government would have to acquire machinery, equipment and personnel for the purpose, which entails extra expense.

From the trend of discussions we had with the Government of Bihar, it was apparent that they were not anxious to take over this work. Everything considered, we are of the opinion that the work of rehabilitation should remain with the Corporation as hitherto.

Method of payment of compensation

11. It would undoubtedly be cheaper to Government to pay cash compensation in all cases, but there are various other aspects which must be taken into account. Assurances couched in no uncertain terms had been given in the Legislature on behalf of Government during the debate on the Damodar Valley Corporation Bill that Government would give house for house and land for land, as far as possible. Besides, the population affected is mostly aboriginal whose community life should be preserved, if possible. Thus the problem is both political and social. If displaced persons are paid in cash, most of the money is likely to be spent on drink, and rehabilitation will not take place. As large numbers are involved, it would be preferable to ensure genuine rehabilitation; otherwise the State would have on its hands large numbers of discontented persons uprooted from their homes giving rise to law and order problems. In these circumstances, we feel that payment in cash in all cases is neither fair in itself nor in consonance with the declared policy of the Government, and must be rejected.

12. In view of the high cost of rehabilitation the Financial Adviser of the Corporation has suggested that those who desire payment in cash should be so paid, and others who wish to have compensation in kind should be given land for land and house for house, not necessarily in the vicinity of their present villages, but at other convenient places in the valley, at distances ranging from 60 to 100 miles from the present villages, where land could be reclaimed at a considerably cheaper cost. He has also suggested that construction of

houses and provision of amenities should be on a more moderate scale not exceeding those which are at present enjoyed by the villagers.

The first proposal of the Financial Adviser that land for land may be given about 60 to 100 miles away where it can be reclaimed at lower cost does not appear to have been based on an examination of the question in all its aspects. Before taking a final decision in this matter, the possibility of persuading the population to migrate to this distance has to be explored. In view of the well-known reluctance of the Indian villager to move far away from his moorings, it is not easy to persuade him to move 60 or 100 miles away to unfamiliar surroundings, and the proposal is sure to lead to justified agitation by displaced persons and cause difficulties. Besides, as has been mentioned in paragraph 6 above, an assurance had already been given in the Constituent Assembly that these persons would be settled "in fairly familiar circumstances", and any change in policy will lead to charges of breach of faith.

13. The second proposal made by the Financial Adviser is that the construction of houses and provision of amenities should be on a more moderate scale, not exceeding those which are at present enjoyed by the villagers. Here, so far as land is concerned, land of equal productivity must be given to the displaced persons. Any other course would be unfair.

The only other matters in which economy can be effected, are the house and the amenities provided, such as small roads, wells, places of worship and community centres. It is the declared intention of Government to provide displaced persons with better houses in better surroundings than those acquired and this has already been referred to. The amenities provided in the resettlement colonies which we have seen appeared to us to be the very minimum that ought to be provided. There is no question of extravagance. Any change in this regard therefore seems to us uncalled for.

14. The Estimates Committee in para. 42 of their Report suggest that:

"The cost of rehabilitating displaced persons also seems to be high. If grants of money, sites for residential quarters and fields for cultivation are given, the arrangement will be less costly and the displaced persons will enjoy better living."

The intention of the Estimates Committee is not very clear. There are two possible interpretations:

(a) The Corporation may acquire culturable waste, and hand over to the villagers an equivalent number of acres, and give suitable plots

for houses in a new village *abadi*. The difference between the price of the new land and site and the compensation payable to the displaced villagers may be paid in cash to enable them to reclaim the land and build the house; or

(b) Fully reclaimed land of equal productivity and a site for a house in a newly planned village may be given. The difference in the value of the house and the village site may be paid in cash to enable the villager to build his own house.

There is no doubt that the first alternative would be cheaper, as the upper limit would be the compensation payable under the Land Acquisition Act. Under this scheme the villager would have himself to reclaim the waste land. Speedy and efficient reclamation of waste lands is however best done with the help of machinery, which is beyond the resources of the villagers. A few may make an attempt at some kind of reclamation; others may not do even that. The difficult terrain of the upper valley does not lend itself to easy reclamation and may baffle the less enterprising cultivator. It is, therefore more than likely that the cash compensation would be squandered on unproductive objects. Thus real rehabilitation may not take place at all.

If the intention is as indicated in the second alternative, it is doubtful if it would lead to much saving, as under the policy followed, we would still have to acquire the site for the village, level it, lay it out into plots, provide roads, wells and other amenities and build community centres. In addition, Government would have to pay the cost of the houses acquired. There are likely to be other practical difficulties. The villager, being unwilling to leave his home till the last moment, is likely to find himself, when actually moved, without a house in the new village. This will give rise to unfavourable public comment. Further, there is every likelihood of the displaced persons of the type we are dealing with reproducing ill-built and unhygienic house in the new villages, if left to themselves, thus defeating the policy of Government. At Govindpuri Nai Basti, one of the Corporation's new colonies, the displaced persons have been allowed to build their own houses. We have found that many of them have reproduced the old insanitary structures.

We would, however, suggest that the method should be tried of entrusting the construction of the houses to an approved village co-operative society under the guidance of the Corporation's engineers. Otherwise, we should leave the present procedure unaltered.

Resettlement Colonies

15. It has been stated by the Estimates Committee in para 28 that—

It was the experience of the Committee that the houses that had been constructed for the displaced persons had given way before they had been occupied by the persons concerned."

We visited Bacchai and Gauria Karma, two of the villages built by the Corporation for displaced persons, and inspected the houses. So far as we could ascertain, none of the houses built by the Corporation had given way. The roofs, however, had sagged in some cases, partly because the timber used in the earlier stages was undersized, and had not apparently been properly treated. This defect was being rectified. We were also informed that some walls of the houses at Singhrawan village were damaged by the early rains, while still under construction and the contractor had to make good the damage.

As a result of the inspections made by us, however, we found that although the rates paid for the principal items of work, like roofing, doors and windows called for good quality of work, lower standards had been accepted. We, therefore, agree with the Estimates Committee that the work done is not fully commensurate with the money spent. This is the more surprising as the work was under the supervision of an officer of the rank of Executive Engineer.

Land Reclamation

16. Before dealing with the costs of land reclamation we would like to examine the nature of this problem in the Damodar Valley. Land reclamation to resettle the dispossessed is essentially a human problem, as has been made abundantly clear by the extracts of speeches made in the Legislature during the passage of the Bill cited earlier in this report. If it had been merely a case of paying monetary compensation for the land acquired, the matter would have been very much simpler. But Government has, as a matter of deliberate policy, decided to give land for land of equal fertility and house for house and provide also certain essential minimum amenities. This is the principal reason why the cost of resettlement under Tilaiya and Konar has been on the high side. The nature of the land, which has been subjected to erosion for centuries, makes reclamation in the upper valley not only difficult but expensive.

The magnitude of the problem created by the submergence can be seen at a glance from the sub-joined statement. It refers only to

the first phase as reliable estimates of the second phase have not yet been worked out:—

Name of the Project	Area submerged			Number of houses affected	No. of families affected	No. of persons affected
	Cultivated	Un-cultivated	Total			
	A C R E S					
Tilaiya	7,902	8,205	16,107	629	779	4,648
Konar	6,126	546	6,672	128	110	641
Maithon	19,761	5,787	25,548	1,683	1,951	11,174
Panchet Hill	16,853	17,758	34,611	Survey is in progress.		
TOTAL	50,642	32,296	82,938			

It will be seen that an area of over 80,000 acres or 125 square miles has to be acquired for the reservoirs but till the villagers' options are finalised, it is difficult to determine the area of waste land to be reclaimed. However, a preliminary estimate for the first phase places this figure at about 20,000 acres of waste land to be reclaimed for rehabilitation purposes.

Cost of Land Reclamation

17. We now proceed to deal with the observations on costs of land reclamation made by the Estimates Committee and the Financial Adviser.

18. The Estimates Committee remark in para. 42 of their report that—

“The schemes for reclamation and rehabilitation seem to be a costly enterprise. The average cost of reclamation for one acre of land is said to be Rs. 480. The Committee have reasons to doubt that this is not the actual figure and the actual cost per acre would be much higher than this.”

In his report ended the 31st July, 1951, the Financial Adviser stated that

“It was originally estimated on the basis of preliminary investigations that the cost of reclamation of waste land will amount to Rs. 380 per acre approximately and the cost of houses will be about Rs. 3 per sq. ft. of covered area and provision was accordingly made in the estimates

***** Recent cost accounting show that waste land reclaimed is costing about Rs. 600 per acre against the original estimate of Rs. 380. There is also likely to be about 50 per cent. increase on the cost of buildings."

In his second report for the period ended the 31st January, 1952, he stated that "the cost of houses now comes to about Rs. 4 per sq. ft. of covered area", and gave the following breakdown for reclamation:

"Retclamation of Dhan land	Rs. 482-per acre
Add—	
Green manuring	Rs. 68- „ „
Cost of acquiring waste land and incidental cost in connection with land acquisition.	R. 55- „ „
	<hr/>
	Rs. 605- „ „ approx.

The cost of reclamation of tanr land is about 1/3rd of the cost of reclamation of dhan land."

19. The figure of Rs. 480 per acre given to the Estimates Committee appears to be the cost of reclamation as shown in the breakdown exhibited above. In view of the doubts expressed by the Estimates Committee, we had the latest figure of cost worked out by the Corporation. It comes to Rs. 713 per acre (inclusive of acquisition and post reclamation costs) for the best quality of reclaimed land—locally known as *dhan* land—on the basis of expenditure booked up to the 31st March, 1952. The life of the earth-moving machines in these calculations has been taken to be the same as that prescribed by the United States Bureau of Internal Revenues, and depreciation has been calculated for the actual hours of work put in by each machine. Further, figures of actual maintenance charges are used in the calculations. There is much controversy regarding the working life of machines as well as the basis of computing maintenance charges. We have discussed the matter with the officers in charge of the various projects we visited. We feel that while the available data are still far from adequate to enable us to make any definite recommendations, we suggest that the figures prescribed by the United States Bureau of Internal Revenues cannot apply wholesale to Indian conditions. It is, therefore, suggested that for the time being the life of the machines may be assumed uniformly for all reclamation works in India at 75 per cent. of the figures given by the United States Bureau of Internal Revenues (*vide* Appendix V). Similarly a uniform rate of maintenance charges may be adopted. With this

higher rate of depreciation and maintenance, the cost of the work done by the Corporation would work out as follows:—

Cost of reclamation of dhan land including land acquisition, post reclamation and interest charges according to the Corporation's books—Rs. 713 per acre.

(This includes Rs. 150 for depreciation and Rs. 133 for maintenance.)

Increased depreciation—Rs. 50 per acre.

Increased maintenance—Rs. 44 per acre.

TOTAL	<u>Rs. 807.</u>
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In addition to this, some provision has to be made for deterioration of the machinery while lying idle. Assuming this to be about one-third the normal depreciation charges, i.e. Rs. 70 approximately the cost of reclaimed land including post reclamation treatment will be about Rs. 875 per acre.

20. We have also seen the reclamation schemes of Hirakud and Lower Bhavani projects but as they do not compare with the elaborate scheme of the Government of India for the Damodar Valley Corporation, we do not mention them.

21. The reclamation work is done by the earth-moving machinery. It was anticipated that at a capital cost of about Rs. 21.5 lakhs, the Corporation would be able to reclaim 15,000 acres a year and also provide irrigation facilities for 6,000 acres. It was estimated that 3.3 million cubic yards of earth would be moved in a working season of 9 months. But in point of fact, the Corporation have been able to complete a single season's target only in 2½ years in spite of considerable additional machinery with the Department.

22. We have examined carefully the reasons for the high cost and the failure to attain the target. We feel that Mr. de Vajda, Chief Conservation Engineer, who was not familiar with Indian conditions, had over-estimated the capacity of the machines. Further he had assumed operations in artificial light, which in practice was not found practicable. Progress was slow as only tractors with carry-all scrapers, and power scrapers were available but later it improved when bulldozers began to be used. The difficulty of obtaining spare parts readily in India was not fully realised; and the paucity of trained personnel for working these machines and of proper maintenance facilities for servicing them were inadequately appreciated.

23. In our opinion, the cost of reclamation can be reduced

- (a) by ensuring economical use of the machinery, and
- (b) by curtailing overhead charges and making them commensurate with the volume of work.

As regards the first, two steps should be taken:—

- (i) cut down the idle time of the machinery to the irreducible minimum, and
- (ii) hand over to the Chief Engineer all unwanted machines, both unsuitable and superfluous, together with the staff operating them, to be utilised elsewhere. Only equipment which experience has shown to be useful should be retained in the department.

As regards the second, the staff should be reviewed in the light of the works programme and reduced where necessary.

Salary of the Director of Rehabilitation

24. The Estimates Committee observe in para. 27 that

“the salary of the Director is very high as compared to the salaries of the Deputy Director and Assistant Rehabilitation Officers. The pay of a Director in charge of a branch in the Centre Water and Power Commission ranges from Rs. 1,800 to Rs. 2,000 p.m. The Committee, therefore, recommend that the salary of the Director of Rehabilitation and Development should be reduced and brought on par with that of a Director in the Central Water & Power Commission”.

In the beginning the Corporation had employed a non-official as Director on a salary of Rs. 1,600—2,000, but he left after a few months. Subsequently the Corporation secured the services of the present Director of Rehabilitation who had previously served as Deputy Commissioner, Hazaribagh, and whose knowledge of the district was an advantage. This officer had to be paid a salary of Rs. 3,000 p.m. because he had been drawing the same when he came over to the Corporation. The Director is in charge not only of the Rehabilitation and Development Department but temporarily also of the Soil Conservation Department and various other duties. We feel that it would be false economy at this stage to employ a cheaper agency. Later on, when the work tapers off, the Corporation will no doubt make such other arrangements as are justified by the circumstances.

Staff

25. The Estimates Committee observe in para. 28 that "they have reasons to believe that this Department" (the Rehabilitation and Development Department) "is overstaffed, *****". It is necessary to explain the organisational set-up to get a correct picture. There are two separate departments, both located at Hazaribagh. One is the Rehabilitation and Development Department, and the other is the Soil Conservation Department. They are independent of each other. Mr. de Vajda (not connected with the Rehabilitation and Development Department) was in receipt of a salary of Rs. 4,000 p.m., but he left the service of the Corporation early in 1952.

The criticism of the Estimates Committee is directed against the Rehabilitation and Development Department. This department has under it two distinct branches (i) Land Acquisition, and (ii) Rehabilitation and Development. The Accounts Office of the department has now been combined with that of the Soil Conservation Department. The number of posts sanctioned for the Land Acquisition branch is 596, but actually the Director has filled only 194 posts. Of these, as many as 148 are in Grade IV (menials). It has been stated that the cost of land acquired would be about Rs. 510 lakhs. The State Government charges as the cost of land acquisition establishment an amount varying from 5 to 20 per cent. of the total amount of compensation. The cost of the staff employed on this account is estimated to be about Rs. 19 lakhs, or about 3.7 per cent. of the cost of land. Besides, the same staff is also employed on other connected work like the revision of land records of the area acquired. In the circumstances, the Committee consider that, barring such minor economies as the Director may make from time to time, there is no room for any large-scale saving.

26. The other branch, i.e., the Rehabilitation and Development branch has a sanctioned strength of 113, but the number of posts filled is only 78. Of these, as many as 32 are in Grade IV. The work done by this Department so far, is the allotment of 3,000 acres of land to 1,200 families, the building of 343 houses, community centres, etc., and the construction of 15 miles of road. We understand that this branch also deals with a number of other matters including the procurement and distribution of foodgrains at all campsites, making arrangements for having visitors conducted in the upper valley, the average being four a week, all local court work relating to civil suits of the Corporation and criminal cases relating to motor transport, explosives, excise etc., the management of the Corporation's estate at Hazaribagh including the allotment of houses, recovery of rent etc., all *liaison* work with the Government of Bihar including arrangements relating to police, law and order, labour strikes, security etc.,

survey of cottage industries and social and economic survey of displaced persons. The branch has also to keep in touch with displaced persons constantly. Even taking these factors into consideration, the Committee feels that there is some room for economy in this branch. There are at present one Deputy Director, two Assistant Rehabilitation Officers, one Executive Engineer, one Administrative Officer, one Personal Assistant, 3 Overseers and 7 Rehabilitation Assistants in this Section. With a Director and a Deputy Director the post of an Administrative Officer for such a small Section is unnecessary and should be abolished.

27. The Soil Conservation Department which was under Mr. de Vajda upto January, 1952, has been placed under the Director of Rehabilitation and Development after the former's departure. It has a sanctioned strength of 661, of which 512 posts have been filled. These include the combined Accounts Office. The two biggest sections are the Mechanised Earth-moving Section and the Headwaters Engineering Circle, which account for a salary bill of Rs. 5.1 lakhs per annum, out of a total of Rs. 10.38 lakhs. The Mechanised Earth-moving Section was created as an independent unit, and was expected to pay its way. We have recommended earlier that the surplus and unsuitable machinery in this department along with the corresponding staff may be transferred to the Chief Engineer.

We are of the view that the Headwaters Engineering Circle should be transferred to the Chief Engineer. A number of projects have already been investigated by this Circle, and all that is required to be done in the immediate future is to construct those that the Bihar Government approves. The liaison work with the Bihar Government can be kept up by the Director of Rehabilitation, and once a project is accepted by the Bihar Government for execution it would be better to make the Chief Engineer responsible for the design and execution of the works. Investigation of any further projects in future can be undertaken by the Chief Engineer in close *liaison* with the Soil Conservation Department. As a result of this transfer, it should be possible to reduce the post of Superintending Engineer in charge of this work to that of Executive Engineer.

The Accounts Office staff could also be reduced somewhat. The two separate Accounts Offices of the Rehabilitation and Development and the Soil Conservation Departments employed between them 31 persons before amalgamation. The posts filled up at present number 32. One would have thought that amalgamation would lead to economy. It may be noted that the Accounts Office has only two Senior Accountants and three Grade I Assistants, but four officers. The proportion of officers is thus high.

Salaries

28. The Estimates Committee consider that "the salaries are incommensurate with the nature of work performed by the various officers and the staff and the responsibilities entrusted to them". The highest paid officer is the Director. His case has already been dealt with. The rest of the staff of this department are all employed on scales of pay which are common to other offices of the Corporation. The land acquisition staff is generally on deputation. On the whole, therefore, it is difficult to say that salaries are not commensurate with the work performed.

Sanction of posts

29. We have noticed the unorthodox practice prevailing in the Corporation of sanctioning posts which are not immediately required. As against 709 sanctioned posts in the Rehabilitation and Development Department, for example, only 272 are filled. The practice has obvious disadvantages and should cease. Only posts actually required from time to time should be sanctioned, and all old sanctions should be revised. We suggest that any post not filled on 1st November, 1952, should require fresh financial sanction.



CHAPTER IV

THE CHANGES IN THE DESIGN AND CONSTRUCTION FEATURES OF THE KONAR AND TILAIYA DAMS; THE AWARD OF CONTRACTS AND THE RATES FOR VARIOUS ITEMS OF WORKS.

THE TILAIYA PROJECT

Preliminary

We take up Tilaiya first because it is chronologically prior to Konar. We refrain from considering the rates, as the work having been done departmentally, they fall outside the scope of our terms of reference, *vide* para. 3 of Chapter I.

2. Of the eight dams envisaged by Mr. Voorduin in his "Preliminary Memorandum", he had located three dams on the Barakar river—at Maithon, Deolbari and Tilaiya. He considered that these three reservoirs would provide sufficient storage capacity for complete flow regulation required for all purposes, although he added in a foot-note that if it was found feasible to increase the size of the reservoirs at Maithon or Deolbari, the construction of the Tilaiya reservoir might be postponed until justified by other considerations. The Tilaiya Project, like the other projects, included a hydro-electric power station.

3. The meeting of the three Governments held on the 23rd and 24th August, 1945, to consider Mr. Voorduin's plan gave top priority to the investigation of the dam site at Maithon. In consultation with the American Technical Mission, however, Mr. Voorduin prepared early in 1946, a preliminary report not only on the Maithon Project but also on the Tilaiya Project as the latter was considered to be "strategically important in the proposed programme of construction of the Maithon dam" being "a useful source of dependable water supply needed for construction of the Maithon Project". It was, therefore, recommended that the Tilaiya dam should be constructed simultaneously if not in advance of the Maithon dam to ensure water supply during the construction of the latter. It was expected that the construction of Tilaiya would be completed during one dry season.

4. A subsequent meeting, held on the 23rd and 24th April, 1946, accepted the recommendations in regard to the Maithon and Tilaiya Projects. The Government felt that it was not possible to make

arrangements for the design and construction of Maithon in the dry season of 1946, but recommended that the possibility of starting construction of the Tilaiya dam in advance of other projects should be investigated as quickly as possible. Though further investigations at the dam site continued, construction of the dam could not be started for lack of firm agreement among the Governments concerned in regard to the method of financing the scheme. It was, however, agreed that the construction of the Tilaiya dam should be taken up by the Government of India as expeditiously as possible either through the agency of army engineers or through contractors. Detailed designs of the dam were then prepared but preparations for the enactment of the Damodar Valley Corporation Act, poor response to the invitation for tenders issued in April 1948, and the change of design from a sandfill to a masonry dam, delayed the commencement of construction. It was in September, 1949, that the Corporation started construction of the masonry dam departmentally under the supervision of Mr. Fergusson. Immediately afterwards, however, a socialist-sponsored strike for doubling the wages was organised and for a month and a half no labourer came to work. Thereafter, a partial strike continued till the middle of January, 1950. A number of employees were assaulted and armed police had to be posted at the site for the protection of the workmen. Thereafter, excavations at the site disclosed that the foundations had to be carried deeper than the borings had indicated. There also occurred an unseasonable flood in March 1950. These factors dislocated the construction programme. When the Board of Consultants visited the project in August, 1950, they found the work much behind schedule. On the advice of Shri Venkatachari, a member of the Board of Consultants, it was decided to construct the dam in concrete instead of in masonry. To avoid delay, the concrete work was done with the help of improvised concrete equipment till the arrival of the batching and mixing plant in September, 1951. The concrete dam was completed and formally opened by the Prime Minister in February, 1953.

5. The main objectives of the Tilaiya dam as envisaged in Mr. Voorduin's Preliminary Report were flood control, irrigation and power. When the American Technical Mission proposed the construction of the Maithon dam by hydraulic fill process, the Tilaiya dam was considered as "an adjunct of the Maithon project" being a source of water supply during the construction of that project. This idea was, however, later given up on the recommendation of Messrs. Harza and Harper, members of the Board of Consultants. Dr. Arthur E. Morgan indicated that in his view "Tilaiya dam would have its greatest value if used primarily for power and irrigation and not for flood control storage". The Corporation agreed. The regulated flow from the Tilaiya reservoir, the live storage of which is 260,000 acre ft.,

is capable of generating 1500 kw. of continuous power and of irrigating an area of about 40,000 acres annually.

Changes in design and construction features

6. The design of the dam has undergone several changes. The project, as conceived by Mr. Voorduin in his Preliminary Report prepared in 1946, consisted of "a sand-fill dam with a clay core, a double barrel concrete conduit, each barrel containing two steel pipes, an intake section at the upstream end of the conduit, a small power-house located at the downstream toe of the dam and a free crest spillway located approximately one mile south from the main dam in a local depression of the ridge". Mr. Riegel, of the American Technical Mission, observed that several types of dams could suitably be built but was of the opinion that the type which could be most expeditiously constructed was the one envisaged by Mr. Voorduin. In Mr. Voorduin's final design the saddle spillway was omitted and a stepped type spillway on the right flank introduced.

7. When tenders were invited in April, 1948, for the construction of the dam on the basis of Mr. Voorduin's final designs, only one tender was received, namely, from the Hindustan Construction Co. Ltd. The rates quoted by them, particularly for sand and gravel-fill, were exorbitant and their tender was, therefore, rejected. But the low rates for concrete quoted gave Mr. Mattson the idea that even if the dam were constructed in concrete it would not be costlier. He, therefore, prepared an alternative design for a concrete dam shifting the powerhouse from the right to the left bank and providing for under-sluices of a fairly large capacity in the middle of the dam above the natural bed level. Owing to the large under-sluice capacity provided, he proposed to have a simple overflow spillway on the right flank without any flash-boards or gates.

8. Mr. Mattson's designs were referred to Mr. Voorduin who had by them returned to America. He disapproved any change in his design on the ground that

"The layout of the earthfill section was carefully considered originally in comparison with a concrete section and was selected in preference to the concrete section for reasons of economy".

He further contended that the designs and layout of the earthfill dam had taken at least a year and to prepare similar designs for a concrete dam would take another year with the available staff. This, he thought, would be waste of time and money and would also have a bad effect on the morale of the organisation. Since no satisfactory response was received to the invitation for tenders, he advised the

construction of the earthfill dam departmentally by the Corporation which had by then come into existence. Thereupon the idea of a concrete dam was dropped.

9. Mr. Fergusson, the supervising engineer-designate, agreed with Mr. Voorduin. He formally joined the Corporation in October, 1948, and immediately went on leave as per terms of his contract and returned to duty in February, 1949. After studying the situation he suggested in April, 1949, that instead of an earth dam a masonry dam should be built. The principal features of the dam were a stone masonry section with the powerhouse located on the left flank as in Mr. Mattson's design and an overflow section in the centre and right flank with undersluices on the right edge of the river bed. No stilling basin was provided but full reliance was placed on energy dispersers fixed about 20 ft. below the ogee crest. No bed protection was proposed. The saddle spillway was provided at the same place as in Mr. Voorduin's original scheme.

10. The reason which led Mr. Fergusson to suggest a stone masonry dam in preference to the earth dam were:

- (i) The masonry dam would eliminate the need for the purchase of heavy earth-moving equipment;
- (ii) Advantage could be taken of the masonry type of dam to discharge part of the flood flow over the crest;
- (iii) The rock excavated from the outlet tunnels etc. could be utilised in the construction of the dam;
- (iv) The work would not be vulnerable to floods, as would be an incompleted earth bank;
- (v) It would permit of rapid construction as the earth-moving machinery would take time to arrive at site;
- (vi) The type of work was familiar to Indian contractors;
- (vii) A masonry dam would be cheaper than an earth dam;
- (viii) Mr. Voorduin's design was not suited to Indian methods of working, and to the prevailing Indian conditions, particularly the shortage of steel and cement.

11. Mr. Fergusson's design for a masonry dam was scrutinised and accepted by the Corporation's Board of Engineers with minor changes except that the saddle spillway was given up.

12. The dam was originally proposed to be constructed in stone masonry but later, with a view to speeding it up, it was decided to adopt the precast method. Construction, however, did not progress according to schedule for reasons already given.

13. The Board of Consultants at the request of the Corporation inspected the construction operations at Tilaiya and spent considerable time discussing the various plans and construction methods with a view to producing a safe and satisfactory structure in the shortest possible time. Unfortunately, however, they could not agree on the best method of completing the dam.

The difference of opinion revolved round the type of construction. Whereas Messrs. Harza and Harper were in favour of adopting the concrete process or the similar American precast process, Shri Venkatachari in a separate note favoured changing to "conventional concrete construction", regardless of its implications on speed. He thought that until more experience had been gained no new experiments should be tried in the construction of Tilaiya dam which was the first to be taken up by the Corporation. His colleagues, however, did not believe that this was in the nature of an experiment, because ample experience of the precast method had already been gained in America and elsewhere. Messrs. Harza and Harper agreed, however, to leave the matter for consideration and decision of the engineer-in-charge, with the proviso that the change to concrete should not be made unless there was an assurance that the required equipment could be delivered in time to enable the work to proceed without delay and that the date of completion would not be materially postponed.

Shri Venkatachari in his separate note gave also a programme of construction according to which the dam would be completed by June, 1952. As regards the cost he said:

"The cost estimates of the project have been figured out on the low side. There is bound to be a substantial excess not only because of the change over to concrete but also because of inadequate provisions under other heads. Correct cost estimates should be prepared after the plans have been finalised."

14. A change over to concrete was made and this entailed considerable extra expenditure and also delayed the completion of the dam. As the advice of the Board of Consultants was not unanimous in the matter, we tried to ascertain when and on what grounds the Corporation took the decision in favour of a concrete dam; three different accounts were received on three different occasions all of which were unsatisfactory. The fact is no formal decision was taken by the Corporation but Shri Venkatachari's advice was tacitly accepted. It is surprising that no record exists of so important a decision with such technical and financial implications.

15. These numerous changes in design were due to the absence of a chief engineer who could have given the Corporation authoritative advice.

16. The Estimates Committee have remarked in Para. 40 of their report that "keeping Tilaiya hydel as a separate grid and having a stand-by arrangement seem to the Committee to be both extravagant and unnecessary". We suggest that the possibility be investigated of linking Tilaiya power station with Bokaro. As soon as it is done, the thermal power plan at Tilaiya may either be disposed of or used elsewhere.

17. Incidentally we may note that the water now stored by the dam cannot be used for irrigation till the Durgapur Barrage and new canals have been constructed. We suggest that it may be considered whether the waters both of Tilaiya and Konar cannot be used for *rabi* irrigation in the existing Damodar canal area by constructing water courses and for *kharif* irrigation on the right bank through a temporary regulator at Anderson Weir.



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CHAPTER VI

THE PLANNING AND PURCHASE OF STORES AND EQUIPMENT FOR WORKS ON DAMODAR VALLEY CORPORATION AND THE PROCEDURE THEREFOR.

Preliminary

The Damodar Valley Project is one of the first major river valley schemes launched in the country soon after independence. Building of dams, power houses, barrages and a large thermal station like the Bokaro could hardly be undertaken without adequate equipment like earth-moving machines, crushing and batching plant, power-house and transmission line equipment and electrical stores. Most of these had to be obtained from abroad. Besides, an assured supply of stores such as cement, steel, petrol, oils, lubricants, explosives, etc. is essential to complete the works according to programme. Innumerable items like small machines and tools, spare parts, ironmongery, timber etc. have to be stockpiled.

Planning of equipment and stores

2. Stores and equipment cannot be planned without having a clear idea of

- (i) the quantities of the work involved.
- (ii) the construction programme to be carried out.
- (iii) the methods of construction,
- (iv) the agencies of construction.

Countries like the U.S.A. which have handled large river valley schemes can, from past experience at least, plan their requirements subject to periodic revision. The Corporation did not at first possess any high-powered technical staff on which it could count for planning of equipment and stores, even provisionally. They did not have for a long time a Chief Engineer to advise them.

3. The Preliminary Memorandum of Mr. Voorduin roughly estimated the cost of the whole project at Rs. 55 crores. Of this a little over 30 per cent. was to be spent on power equipment and a similar large amount was to be spent on stores and equipment for the construction of dams. Detailed estimates for the first phase of the project place the cost at more than Rs. 80 crores of which at least one half was to be spent on equipment and stores during a period

of 4 to 5 years. This is the largest single head of expenditure and needed careful planning and correct purchase procedure.

Planning of stores and equipment by the Corporation

4. The Corporation had for guidance on planning and equipment the report of Mr. Schlemmer of the American Technical Mission on construction planning and methods. It contained for Tilaiya a complete list of the numbers and description of the machinery and equipment required to build a sand-fill dam. For Maithon, as the work was of great magnitude, Mr. Schlemmer during his short stay in India was able to give only a list of the types of machinery required. Mr. Voorduin's preliminary report on Konar, and the Government of Bengal's estimates for Barrage and Irrigation canals, gave an account of the work involved in the construction of these projects. Provisional planning of machinery and stores for other projects was possible on the basis of the quantities indicated by the Central Technical Power Board in their "Outlines of Project features of Damodar Valley Dams". Planning for the Bokaro Thermal Station had been settled by the Central Electricity Commission with the International General Electric Company and the Kuljian Corporation. In the absence of competent technical advice and a proper appreciation of the magnitude of the problem, it does not appear that the Corporation paid sufficient attention to planning. It must, however, be said in fairness to them that soon after the Corporation was constituted they decided that all the dams would be let out on contract to large foreign firms on the cost-plus-fixed-fee basis. The designs would then be prepared by consulting engineers and equipment planned by the contracting firms who would either have the requisite equipment in stock or could easily procure them from their home markets. But unfortunately for the Corporation events developed differently. The changes in design were frequent and the programme of construction was not firm. We have already dealt with the changes in design in the case of Tilaiya and Konar dams. The Maithon dam, which was originally planned as a sand and gravel fill dam to be constructed by the hydraulic process, is now being built as a rolled-fill dam. Out of the list of equipment for Konar prepared by the Corporation costing about Rs. 60 lakhs, the contractors wanted only equipment worth about Rs. 25 lakhs. The Corporation, however, placed orders for all the items in their list in order to build up a stockpile of machinery. The surplus machinery from Konar, as well as same machinery from the Barrage and Irrigation Project, ordered and received ahead of the initiation of construction, was utilised by the Soil Conservation Department, where it proved partly superfluous and partly unsuitable. Having regard to the numerous changes in design and programme, which in the regrettable

absence of the Chief Engineer were more or less inevitable, purchases as well as stock-piling for the earlier works had to be done on an *ad hoc* basis; overall planning which would have ensured proper phasing and timely purchases was made impossible.

5. The Corporation had to arrange for the supply of coal in time for the start of the Bokaro Thermal Station. They, therefore, took the Bermo seam of the Kargali Colliery on sub-lease from the Railway Board in October, 1950. No decision was taken for months as to whether the mining should be let on contract or done departmentally. Tenders for mining were invited only in April, 1951, and a letter of intent was issued to the Indian Mining and Construction Co., Ltd., late in 1951, though the Corporation had not been satisfied with the firm's work on Bokaro foundation excavation. The firm withdrew their tender in April, 1952. The Corporation decided on departmental mining, but nothing tangible was achieved till February, 1953, when the first set of the Thermal Station was ready for operation. The services of an expert were secured only in February, 1953, under the Technical Co-operation Agreement, and it is expected that mining operations will be started soon. In the meantime the Corporation has to buy coal at the controlled price which is expected to be about Rs. 4 per ton more than departmentally-mined coal. It cannot, therefore, be said that this part of the programme was well-planned.

6. The machinery for Maithon and Panchet Hill was planned after the present Chief Engineer had joined the Corporation and the overall co-ordinated plan of construction settled. This equipment has been well-planned.

7. In their stock-piling of machinery, however, the Corporation has been lucky as owing to the worsening of the international situation, the prices of machinery not only rose sharply but the supply position became acute and machinery became difficult to procure at any price.

8. Planning of construction materials and other stores obtainable in the country is undoubtedly easier, but changes in design tend to upset it about equally.

Purchase of stores and equipment

9. The Damodar Valley Corporation Act contains no restriction on the powers of the Corporation in regard to purchases of stores, and hence the Corporation proceeded to make arrangements they considered suitable.

Corporation's purchase procedure

10. The Corporation evolved their own purchase procedure during the course of 3 or 4 years. Within a few weeks of its inauguration the first circular laying down the procedure for the invitation of tenders was issued. Thereafter a series of circulars and orders were promulgated:—

- (1) laying down the procedure for the engineering branch and asking it to notify to the purchase branch its requirements well in advance together with the date on which the articles would be required;
- (2) warning indentors not to place orders on the purchase branch unless sanction of competent authority to the purchase had been obtained;
- (3) laying down a special procedure for purchases made by the Kuljian Corporation;
- (4) directing the indenting officers to give complete specifications of the materials required and directing those who accept tenders to record the reasons for non-acceptance of the lowest tender;
- (5) declaring that the policy of the Corporation was to make purchases only after calling for tenders and prescribing the prior sanction of the Corporation to any departure from this rule. An exception was, however, made in cases where the number of suppliers was limited as in the case of heavy construction equipment. In such cases it was sufficient if quotations were called for from recognised suppliers or agents. A list of suppliers was to be approved by the Corporation, and each officer was to maintain a register containing full particulars about the suppliers. Purchases of petty stores costing Rs. 25 or less were allowed to be made without calling for tenders. This limit was subsequently raised to Rs. 500;
- (6) objecting to the improper practice of officers asking firms to supply certain specified goods and then placing indents on the purchase department and pointing out that the purchase should only be made by means of competitive tenders. So far as the central purchase organisation was concerned, it was stated that a list of firms had been approved by the Corporation and the purchase branch had either to call for open tender or invite quotations from these firms. The purchase branch

could not, therefore, comply with the request of indenting officers for placing orders on a particular firm. The indenting officers would have to make the purchases under their own powers in such cases, or obtain the sanction of the Corporation if any purchase exceeded their powers:

- (7) forbidding indenting officers to ask for machines of specific makes and directing them to give the specifications of the machine required, thus leaving it to the purchase branch to select the most suitable machines that would satisfy the requirements;
- (8) laying down a special procedure for indenting and paying for petrol, oil and lubricants; and
- (9) drawing attention to the fact that the policy of making purchase after calling for tenders had not succeeded, that the officers had not foreseen the requirements in time and had shown a general tendency to order everything on the "blue" or "emergent" form, and exhorting them to anticipate the requirements well in time, and where it could not be done, the indenting officer was to give reasons so that the Corporation may be in a position to give sanction to deviate from rule.

Finally, a comprehensive memorandum on purchase procedure was issued on the 22nd October, 1952. The memorandum lays down in detail the procedure to be followed by the purchase branch on receipt of indents, in issuing enquiries, opening of tenders, placing orders, progressing of orders, and payment therefor. It has been definitely prescribed that for special items like heavy concreting or earth-moving equipment, the Corporation's own agency, and not the Directorate General, Supplies and Disposals (D.G., S. & D. for short) should be used.

Thus the procedure, more or less similar to that in vogue in the D.G., S. & D., has been evolved slowly during the course of the last four years.

Utilisation of Government Agencies for Purchases

11. The Estimates Committee's main criticism is directed against the non-use of governmental purchase agencies. They observe:

"The Committee are unable to understand why in the face of a Government organisation like the D.G., Supplies, and the two big Purchase Missions abroad, namely, the India Store Department, London and the India Supply

Mission, Washington, the D.V.C. should have been given power to arrange for supplies themselves without the aid of these organisations. It was stated in Parliament that one reason why the Damodar Valley Corporation did not place their indents on D.G., Supplies was that they were not able to get the goods in time. If this criticism is correct, then the Government purchasing organisation is too inept for these functions. This is an additional reason, for accepting the recommendations of the Committee made in para. 56(b) of their First Report on the Ministry of Industry and Supply for replacing the Government purchase machinery by a Purchase Corporation to whom all these functions could be assigned. The Committee are not, however, clear about the charge of delay made by the D.V.C. against D.G., Supplies, as from the statements made before them it appears that the D.V.C. did not utilise the purchase organisations to the full and consequently the charge of delay against them may be exaggerated. In any case the Committee consider that some machinery should be devised whereby there is complete liaison between the Purchase Missions and the D.V.C. so that their requirements are supplied in time."

12. The question of the utilisation of the Directorate-General, Industries and Supplies (now Supplies and Disposals) was raised in the meeting of the Participating Governments on the 9th May, 1949. On the one hand, it was said that the Directorate-General's organisation had specialised knowledge and long experience of the work and covered a wide field. On the other, the view was held that economical purchase of highly intricate machinery would be facilitated by the Corporation directly negotiating with the manufacturers and that working through the intermediary of the Directorate General, would cause considerable delays. It was finally decided that the Corporation should take full advantage of the rate-contract system and standard stores purchased through the Directorate General and that for the rest, the matter should be left to the discretion of the Corporation.

The question came up again in the second meeting of the Advisory Committee in August, 1949, when it was stated on behalf of the Corporation that the services of the Directorate General were being utilised for long term supplies involving deliveries of six months or more; however purchases of supplies required immediately were being dealt with by the Corporation itself. The late Ministry of Industries and Supplies subsequently raised the

question whether the indents for machinery which generally took more than six months to secure should not be placed through the Directorate General. This was discussed by the Corporation with the Directorate General on 26th May, 1950, and it was agreed that the Corporation should continue to operate upon all rate and running contracts of the D.G., I. & S. It was also agreed that if, for any reason, the Corporation found it difficult or impossible to buy against these contracts, it might make independent arrangements. The Corporation could also purchase all items costing less than Rs. 50,000 without reference to the Directorate General. In regard to items costing more than Rs. 50,000, it was agreed that whenever the materials were needed within 6 months, or were of a very specialised nature, the Corporation could make its own arrangements. For the rest, the indents may be placed on the D.G., I. & S. The Corporation have, on the whole, tried to follow this agreement.

13. We now proceed to examine to what extent the agency of the D.G., S. & D. has been utilized by the Corporation. An analysis of the purchases made by the Corporation upto 31st August, 1952, is as follows:

	Rs. in lakhs
(i) Electrical equipment purchased by the Electrical Department of the Corporation.	477.5
(ii) Plant and equipment purchased by the Purchase Branch.	596.1
(iii) Construction machinery purchased by the Purchase Branch.	250.1
(iv) Construction materials purchased by the Purchase Branch.	368.7
(v) Other stores and supplies purchased by the Purchase Branch.	112.7
Total	1805.1

The first three categories of stores have been treated as items of a specialised nature, and purchased generally through the Corporation's own agency. The total purchases through D.G., I. & S. (now D.G., S. & D.) amount to Rs. 167.4 lakhs or about 9 per cent. of the total.

This low percentage is due mainly to the Corporation having decided and rightly to class plant and equipment and construction machinery as items of "a very specialised nature". It has not been possible in many cases to foresee requirements well in advance owing partly to changes in design referred to earlier and the indenting officers have in most cases been obliged to place indents at the last moment requiring immediate compliance, with the result that the services of the D.G., S. & D., could not be utilised to the maximum possible extent. It should be possible to utilise the D.G., S. & D., to a greater extent if requirements are foreseen and orders placed by the indentors about six months in advance.

14. Another point which arises is whether the purchases made by the Corporation independent of D.G., S. & D., have been economical and expeditious. While the anxiety of the Corporation to make purchases on a competitive basis is manifest from the very beginning, many factors militated against it. The perfecting of the purchase organisation took time. The policy was to ask registered firms to tender when public tenders could not be invited. But the preparation of the register in the Corporation's offices was a slow process. Meanwhile, the demands made by the indenting officers were mostly of an urgent nature. The Corporation, therefore had to make purchases by negotiation and it cannot, therefore, be said that purchases were made after much competition.

15. We have carefully considered whether the Corporation should in future be permitted to continue its present policy or whether it should be directed to make all its purchases through the D.G., S. & D., like a Government department, a certain limit being prescribed upto which the Corporation might be free to make its own purchases. The analysis of the Corporation's purchases given in para. 13 above indicates that the bulk of the expenditure is incurred on the purchase of plant, equipment and construction machinery. The Corporation's reasons for direct purchase are two-fold. They get better post-sale service if they go direct to the supplier and they get supplies much quicker. The D.G., S. & D., states that he too has a contract for after sales service and there should, therefore, be no difficulty in this matter. While we feel that personal contact does make a difference, undue weight should not be attached to this argument. The other question of timely supply is of greater importance and has to be examined in some detail.

Apart from indents against rate and running contracts, the Corporation has placed 26 indents on the D.G., S. & D., One of these indents was cancelled, as the D.G., S. & D., could not arrange supply. Of the balance, only 4 were dealt with by the D.G., S. & D.; in two of them the time taken was about 5 months, in the third it was 11 months and in the fourth, the order placed on 30th October, 1952, had not been complied with till early January, 1953. The time taken is obviously longer than need be, as the supplies were obtained in India. The remaining twenty-one indent were cross-mandated by the D.G., S. & D., on our Missions abroad. In one of them, although the date of delivery could not be adhered to, the delay was probably not considerable. The supply came in August, 1949, as against April, 1949, demanded. Another indent was met from disposals stock. In eight of the remaining nineteen, no supply had been received to the end of December, 1952. The earliest of these go back to February and March, 1951, and

were nearly 2 years old. The latest was dated the 10th July, 1952, and it was stated by the Corporation that even an order on the suppliers had not been placed by the I.S.M. upto January, 1953. In the eleven remaining cases in which the supply has been received the most important was the batching plan for Konar dam, which the Corporation pursued even to the extent of sending its own officer to Europe. As a result of the special efforts made, the machinery was received in about 8 to 13 months from the date of indent. This delayed the concreting work to be done at Konar. In the other cases, the supply has taken from 9 to 20 months.

16. During the Committee's visit to Hirakud the Chief Engineer was requested to supply a list of his orders placed on the D.G., S. & D., and he has been good enough to comply with our request. It has been noticed from the statements received that the average time taken for supply at Hirakud is nearabout one year. In some exceptional cases one or two supplies have come in 2 months, in a few cases within 4 to 6 months, but in the large majority the time is over 6 months. In many instances over a year has been taken; there are a few cases in which the orders placed in 1949 still remain uncomplished with.

17. The general question was discussed with the Secretary, Ministry of Works, Housing and Supply, and the Director General of Supplies and Disposals. The Secretary wrote:

"It is true that in the past there have been delays and causes for complaint. I do not wish to belittle these difficulties. We are, however, constantly improving the Supply Organisation and lately we have taken steps to see that delays are avoided, that special indents are given priority consideration and that in special circumstances, the procedure is adjusted so as to comply with the special requirements of indentors*** Recently, there was a Committee appointed in London and in Washington to go into the question of purchase of equipment required by special bodies**** and the Committee**** has recommended that in such cases the procedure should be simplified**** so that unnecessary delays are avoided. The report has just been submitted to Government and it is hoped that the recommendation would be accepted shortly.

There was one point which was made in the discussions between us. You felt that if an indent was cross-mandated by the D.G. Supply to I.S.D., London or I.S.M. Washington, he lost all interest in the further

progress of the indent and this was not desirable. Both D.G. and I agreed that this procedure needed revision. If the indent is placed on D.G., he would be responsible for further progressing of the purchase arrangements even if for want of supply in India, the indent is cross-mandated either to the I.S.D. or I.S.M. I hope that this adjustment will enable such delays as occur in London and in Washington to be reduced to the minimum****. In the last resort the Chairman of the D.V.C. is free to write to me and to bring any such case of delay to my notice so that I could look into the matter**** and see that the work of the Corporation is not held up for want of supply by us."

18. The Corporation is a statutory authority specially set up to achieve quick results. The very purpose of the Act would be defeated if the rigidity of a Government organisation were imposed upon it. We, therefore, think that it would not be proper to compel the Corporation to make all its purchases through the D.G., S. & D. At the same time, we feel that it should be advantageous to the Corporation to enforce more strictly the procedure already laid down to ensure that requirements are foreseen by indenting officers as far as possible. If this is done, it should be possible for the Corporation to utilise the agency of the D.G., S. & D. to a greater extent than is being done at present. If the D.G., S. & D. is in a position to make quicker and timely supplies, the Corporation should—and will—make greater use of that organisation. Incidentally, it is in the national interest that these organisations which are established and maintained at considerable public expense are utilised more fully and in the process perfected.

Standardization

19. A few other points concerning purchases generally are worth consideration. It will be noticed from the details of purchases already given that the largest sums are spent on machinery and equipment. The delivery of these also takes a long time. If it were possible to enter into a rate contract for the supply of spare parts, at least for the machines generally in use, the work in the field will be less liable to be held up. The Corporation as well as other projects like Hirakud and Bhakra, could then operate direct on the rate contract, with considerable saving in time and perhaps money. The possibility of entering into such a contract with regard to the spare parts of machinery in common use like specified makes of tractors, shovels, tournapulls, sheepsfoot rollers etc. may, therefore, be explored by Government.

20. This leads to another question whether it would be possible to standardise the equipment to be used in the river valley projects. Such standardisation has some advantages. If confined to two or three well-known makes of each type of machinery, the manufacturers' agents in India may be persuaded to maintain sizeable stocks of spare parts and some stock of machinery as well; now that India has embarked upon long term planning and other river valley projects are bound to come. Further the present machinery worth several crores of rupees in each one of the three projects can then be utilised to the extent possible on other projects which are to come, if facilities for spare parts and replacements exist. The point, therefore, needs consideration by the Ministry of Irrigation and Power.

Agency of Inspection

21. Since the Corporation makes most of its purchases through its own organisation, there is no inspection by any independent agency of goods supplied. At present inspection is only by the consignee, which is, admittedly, not an ideal arrangement.

22. The creation of a separate purchase organisation is itself a more effective check than the indenter himself placing the orders and receiving the supplies. There are undoubtedly certain advantages in having an independent inspection organisation. If the suggestions made in para. 18 above are accepted, it will make it possible for the Corporation increasingly to use the agency of the D.G., S. & D. To the extent this is done, independent inspection will be automatically introduced.

23. The Estimates Committee have also commented adversely on the practice of using consultants as contractors, "A practice has developed", they write "whereby the Corporation have employed some of their consultants as contractors for the execution of work or for the supply of stores or even used them as an agency for inspection of stores supplied by some other firm. This in the opinion of the Committee is undesirable. It is unsound to entrust the work of designing a project and construction to the same agency". They have also objected to the payment to the Kuljians of 2½ per cent. commission for inspection of stores purchased in America. It has been ascertained that apart from the special contract with Kuljians, there is no other firm of consultants of the Corporation which acts in the way mentioned by the Estimates Committee.

24. In the case of the Kuljians, the notes on the agenda of the seventeenth meeting of the Corporation held on 26th February, 1949, 70 M. of I. & P.

after recognising the desirability of separating engineering and construction duties go on as follows:—

“In the case of the Bokaro Steam Power Station tenders had been invited before the Corporation was brought into existence. The International General Electric Co. employed the services of Consulting Engineers on their own behalf in order to prepare a satisfactory tender *****Thus as a result of the action already taken in pre-DVC days the Corporation was faced with a situation where the engineering services were combined with those of the manufacturer. While accepting the tender of the IGE in November last, the possibility of separating the engineering services from the tender was considered. It was informally decided that an attempt should be made to achieve this so that the Consulting Engineers might act on behalf of the DVC and not of the IGE”.

After detailing the various discussions that took place between the IGE, the Chairman of the Central Electricity Commission and the Corporation, the agenda notes go on as follows:—

“From the discussions which Mr. Iengar and we ourselves had with the IGE it became clear that the Consulting Engineers’ services could be separated only for equipment inspection, construction management and initial operation”.

And after giving the advantages of the separation, the position is summed up as below:—

“From the financial, technical and public relations angle it is clear that the DVC will stand to gain substantially if separate Consulting Engineers are appointed on behalf of the Corporation to carry out construction management and initial operation.”

The Corporation accordingly decided that consulting engineers should be appointed to carry out the following functions:—

- (a) Inspection of plant and equipment to be supplied by IGE in accordance with their tender of 4th October, 1948;
- (b) Procurement of material and equipment not included in IGE's tender referred to above;
- (c) Construction management;
- (d) Initial operation of the power plant,
- (e) Training of Indian personnel; and
- (f) Other allied work for the power station.

25. Having decided to separate the functions of the consulting engineer from those of the construction agency, the Corporation proceeded to consider who should be appointed consulting engineers. The notes of the agenda say:

"Though construction management and initial operation could be entrusted to any firm of Consulting Engineers, as long as the firm selected is of a satisfactory calibre the most advantageous course of action in the present case seems to be to entrust this work to the Kuljian Corporation:

- (a) Kuljian Corporation has already worked on the engineering side of the Bokaro Steam Power Station on behalf of the IGE. It is as well for the DVC to take advantage of the experience which the Kuljian Corporation has already gained in dealing with this project.
- (b) This view is fully shared by Mr. Iengar****
- (c) The available records show that the Kuljian Corporation has considerable experience in handling thermal, electrical and civil engineering projects. It has also executed quite a few projects on behalf of the U.S. Government. The fact that the Kuljian Corporation was selected by IGE for the engineering work of the Bokaro Station is in itself a reassuring evidence about the technical competence of the firm****
- (d) For reasons already stated, plans and specifications will be drawn up by the Kuljian Corporation on behalf of the IGE and the Kuljian Corporation's appointment as DVC's Consulting Engineers is not feasible for this part of the engineering work. DVC can, however, build up an effective check on this part of the work as well by appointing the Kuljian Corporation to carry out both equipment inspection and construction management. The Kuljian Corporation is expected to finish all the specifications and designs for Bokaro in another 18 months or so. Thereafter it will function, so far as the Bokaro project is concerned, exclusively as DVC's Consulting Engineers.
- (e) The fact that IGE's warranties for the satisfactory operation of the equipments supplied by them will remain fully effective, if construction management and initial

operation work are entrusted to the Kuljian Corporation is an additional factor in favour of Kuljian Corporation's appointment for this particular work".

It was recommended that the Letter of Intent issued to the Kuljian Corporation to appoint them consulting engineers to carry out the six functions already detailed above should be confirmed.

26. The Corporation decided that "The Letter of Intent issued to the Kuljian Corporation" be confirmed. It also decided that the question of appointing the Kuljian Corporation to serve as consulting engineers for construction management and initial operation should be further explored.

27. The appointment of the Kuljian Corporation was further considered at the eighteenth meeting of the Corporation held on 2nd March, 1949. The Corporation resolved "that the final draft of the contract with the Kuljian Corporation to serve as contractor for construction management and initial operation of the Bokaro Steam Power Station be accepted".

28. The contract was signed with the Kuljian Corporation on 3rd March, 1949, according to which the

"Contractor, as promptly and economically as practicable, shall procure, order and furnish materials, labour and equipment and perform all the necessary work and assume full responsibility for:

- (a) the complete erection of the Bokaro Thermal Plant, as described in International General Electric Company's Contract of 25th February, 1949, with the Owner and
- (b) for the proper operation of the Plant."

Thus the Kuljians became consulting engineers to the I.G.E. in respect of designs, specifications etc., consulting engineers to the D.V.C. in regard to inspection of plant and equipment etc., and contractors for erection of plant and construction of the power house.

29. In a meeting of the Corporation held on 15th December, 1949, the appointment of Kuljians for the purchase of steel and accessories for the Bokaro Steam Power Station was considered. The notes prepared at the time stated that while signing the original contract with the Kuljian Corporation, it was realised that additional equipment and materials would be necessary, the agency to be used for the purpose was left for further consideration, as the Corporation wanted to find out which of the agencies available would carry out its purchases most efficiently and economically. The work involved making a complete bill of materials, inviting tenders, preparation of delivery

schedules, inspection of equipment; expediting shipment, and delivery to the Corporation. During the visit of the Secretary of the Corporation to the U.S.A., he discussed this question personally with the India Supply Mission and the Kuljian Corporation. "From the discussions it transpired" says the note "that the I.S.M. did not have the requisite technical staff at its disposal, especially in view of the specialised engineering knowledge needed for some of these functions. It was felt that since the Kuljian Corporation had already been appointed as D.V.C.'s consulting engineers, it would be desirable to employ the same for these purchases instead of hiring the services of another outfit." The Director of the I.S.M. said that the Kuljian Corporation "will in any case have to draw out lists of materials, specifications, inspection, and progressing, as also contacting right suppliers". In these circumstances the Corporation decided to appoint the Kuljian Corporation to purchase steel and accessories for the Bokaro Steam Power Station. They were to be paid 2½ per cent. commission for the whole work.

30 It will be evident from the foregoing that the Corporation attached great importance to separating the functions of a consulting engineer from those of a manufacturer or a construction firm. In actual fact, however, when the agreement was signed, the functions of a construction agency were combined with those of a consulting engineer, in as much as the Kuljians were entrusted with the procurement of materials and equipment the erection of the plant, and its proper operation. The Bokaro Power Station has progressed more or less according to schedule. The first set has already gone into production, and others are expected to follow soon. A number of Indian engineers have been trained. Although therefore the criticism of the Estimates Committee is factually correct, having regard to all the circumstances narrated above we are not inclined to take too serious a view of this departure from principle. We are content to allow it to rest at that.

The payment of 2½ per cent. commission to Kuljians for procurement and inspection of steel and accessories does not seem to have caused any real extra expenditure, as the I.S.M. did not have the requisite technical staff at its disposal. Even if I.S.M. took over the work, certain items would have had still to be done by Kuljians as indicated by the Director, I.S.M., and they would have had to be paid extra.

CHAPTER VII

THE APPOINTMENT OF A CHIEF ENGINEER FOR THE DAMODAR VALLEY CORPORATION

Introductory: Importance of Chief Engineer

The question of the delay in appointing a chief engineer for the Corporation and the many disadvantages that have flowed from it have been the subject of such acute controversy that in order to enable the reader to form a clear idea of how the matter has been dealt with, a chronological account of the events has been given even at the risk of it being considered wearisome.

Search for Chief Engineer: first phase—May 1948 to March 1949

2. The importance which the Government of India attached to the early appointment of a chief engineer for the Damodar Project will be apparent from the fact that even before the formation of the Corporation, the WMP Ministry (Shri Mozumdar, Administrator, Damodar Valley Project and Additional Secretary in the WMP Ministry and afterwards Chairman, Damodar Valley Corporation) wrote to the External Affairs Ministry on the 19th May, 1948, requesting them to obtain from the U.S.A. the services of two chief engineers preferably with TVA background, one to be in charge of planning and design and the other in charge of construction, in addition to a soil conservation expert. The Ministry of External Affairs addressed our Embassy in Washington and suggested that, if possible, arrangements should be made under the U.S.A. Information and Education Exchange Act of 1948 (Public Law No. 402). The Embassy replied that it was not possible for officers deputed under that Act to render services which can be performed adequately by qualified private American individuals or agencies, and that such services should not include the construction or supervision of public works. The Embassy, however, thought that recruitment outside the ranks of U.S. Government employees was possible, but *that the salary demanded was likely to be high**

3. The Corporation, which had been constituted in July, 1948, decided in October, 1948, to entrust both engineering and construction work to large firms with adequate resources. It was accordingly considered that one chief engineer in overall charge of the project was sufficient and the Ministry was informed accordingly. In November, 1948, Dr. Sudhir Sen, Secretary to the Corporation, who had

* Italics ours.

spent several months in America studying the methods and organisation of the TVA and who had made several friends there, wrote on behalf of the Corporation to Mr. Gordon R. Clapp, Chairman of the TVA, asking for his help in obtaining the services of a top-ranking engineer with adequate TVA experience. Mr. Clapp replied cordially suggesting the names of two engineers, Messrs. H—— and T——. On the 5th January, 1949, the Corporation also requested our Embassy to help in recruiting a high calibre engineer with a background of experience in some public organisation such as the TVA or the Bureau of Reclamation under Public Law No. 402. An attempt was made to negotiate terms with the two engineers mentioned above, both of whom eventually refused the offer.

4. In their cable of the 25th January, 1949, the Embassy enquired what terms were to be offered to the Chief Engineer to which the Corporation replied the next day that any reasonable terms were acceptable. Apparently dissatisfied with this vague reply, the Embassy pointed out on the 5th February, 1949, that if the terms were clearly stated and made sufficiently attractive, Mr. T—— might be inclined to reconsider. It was added that the terms must be considerably better than 15,000 dollars a year, which he was then getting.

Bargaining for Chief Engineer: March—July, 1949

5. The Corporation then decided that as they were behind hand with their negotiations with consulting engineers and construction firms and as they had not yet been able to secure the services of a chief engineer, they should send their Secretary to America to settle these and certain other matters. The Secretary left for America on the 1st March, 1949.

6. Nearly eight months had elapsed since the establishment of the Corporation and yet no chief engineer was appointed, which attracted public criticism. It also appeared that the question would be brought up in the conference of Participating Governments fixed for the 9th May, 1949. On the 29th April, therefore, the Chairman cabled to the Secretary stressing the urgent need of a chief engineer. He followed it up with a letter dated the 2nd May, 1949, in which he explained the weakness of the Corporation in not having a competent officer at the head of their engineering organisation and urging that one should be secured as soon as possible and the Corporation informed. He ended by saying, "A Chief Engineer of high standing approved by the Embassy and approved by the T.V.A. or a U.S.A. Government organisation would have been a great help to us and even would be to-day and I would request you to do all you can to get a man of this calibre at once and let me know in Delhi that you

have been able to do so giving me details or just enough information that will show his high standing. With that I can to a certain extent meet the opposition at the conference on the 9th”.

Dr. Sen wrote back to say that since his arrival in the U.S.A. he had been trying hard for a chief engineer; he tried for various people, e.g., Messrs. Voorduin and two others but all declined for one reason or another. He had discussed the matter with the TVA authorities who suggested two names, (1) Mr. C——, Chief Engineer in a public utility company in Florida, and (2) Mr. K——, an ex-TVA engineer, now at Lima, Peru, and that he would communicate to the Chairman the result of his enquiries.

7. On the 18th May, 1949, Dr. Sen reported that our Minister in America recommended that the Chief Engineer should be selected through a board consisting of himself (the Minister) and a high U.S. Government official. and that, for purposes of negotiations, the Minister desired an official communication from the Corporation stating the maximum salary to be offered and other terms like duration of contract, passage and other allowances, transport, etc. The next day the Chairman of the Corporation cabled back offering the following terms:—

- (i) Salary: Rs. 4,000 to 5,000 a month, 30 per cent. payable in dollars.
- (ii) Period of employment: 3 years.
- (iii) Sea or air passage both ways for officer and family.
- (iv) House rent 10 per cent. of salary payable by incumbent.
- (v) T.A. admissible to Class I officers.
- (vi) Free car.
- (vii) Contributory provident fund; Corporation's share=6½ per cent. plus interest.
- (viii) Leave: 1/11th of the period served on average pay.

The Corporation would be prepared to consider any special recommendations the selection board may make in the matter of salary and other terms for a suitable candidate.

8. On the 21st May, 1949, the Chairman informed the Finance Department that the Corporation had offered for an American chief engineer terms more or less similar to those offered to Mr. Voorduin, but that it was left to the selection board to finalise them, and that, as soon as they were settled, dollars would be needed. The Ministry of External Affairs were also informed on the same day.

9. On the 23rd May, 1949, Dr. Sen cabled that he had discussed the question of chief engineer with the Commissioner of the Bureau of Reclamation who was willing to assign a suitable man under Public Law No. 402, that Minister Sen had approved the idea, that in this connection the American rules of procedure required that the cost of the assignment, roughly \$18,000 per annum, should be deposited with the U.S. Government, and that he was taking action accordingly on the assumption that the Corporation could arrange for the dollars required. On the 24th May, the Chairman communicated this to the Ministry of Finance and asked for \$18,000.

10. On the 30th May, 1949, a cable was received from the Secretary saying that Mr. B—— former Chief Engineer of the TVA, was greatly interested but that he would demand more than 18,000 dollars, and asked for authority to raise or make it tax free, that both Minister and Secretary considered Mr. B—— despite his age, an asset to the Corporation and the country.

11. In a letter dated the 27th May, received by the Chairman on the 2nd June, Dr. Sen made a reference to Mr. B—— and wrote that in the opinion of the Minister it was unwise to stint on pay for such high calibre persons and that he (Dr. Sen) shared this view.

12. The Chairman cabled back on the 30th May, agreeing to raise the pay above 18,000 dollars, but left terms to be finally settled by Minister Sen and Dr. Sen.

On the 3rd June, 1949, our Minister cabled to the Chairman as follows:—

“Have seen your cable to Sudhir Sen. B—— who initially indicated keen interest has withdrawn apparently on salary grounds. I have cabled him to reconsider and visit Washington for further discussion of terms. Please cable if Corporation will approve offering him or any other equally suitable candidate eighteen thousand dollars per year tax free payable in dollars plus free house. Consider such terms essential to attract really high calibre engineer for this responsible job”.

On the same day the Secretary reported as follows:—

“It is extremely difficult to find a really suitable man with the requisite experience and weight of authority, who would be prepared to come out to India. Even if, after relentless search, someone is identified, it is almost impossible to fit him into the salary range suggested by the Corporation”.

13. The Chairman had in the meanwhile followed up his cable of the 30th May by a letter saying that Mr. B——'s name had been suggested to Dr. Guha (Member of the Corporation) by Dr. Morgan, but it was not sent to Dr. Sen because they thought that he was a bit too old though they did not know what his age was. He asked Dr. Sen to see that B—— was not too old for our hot climate, that Rs. 5000 free of income-tax meant Rs. 10,000, and would be criticised as being too high. So Dr. Sen was to pitch the salary as low as possible, though it was recognised that it would be more than 18,000 dollars. If, however, B—— was really first rate, as Dr. Sen said and Dr. Morgan held, it might be worth while getting him. Anyway, whatever terms were fixed, they should be fully backed by the Embassy and by Chairman TVA and also by the State Department, if possible.

14. This vacillation and indecision, this bargaining, it may be noted in passing, are very typical of the working of the Corporation's mind on the subject of chief engineer. The Corporation's inability to make up its mind cost them many officers. The Secretary wrote later, "I had no doubt that a first rate chief engineer could have been appointed around April, 1949, had we then been prepared to pay the same terms on which Mr. Komora was ultimately appointed". We agree.

15. The Chairman cabled to the Embassy on the 6th June, 1949, as follows:—

"For B. R. Sen from Mozumdar your cable stop salary eighteen thousand dollars tax free amounts to thirtysix thousand too high under Indian conditions stop cannot agree to tax free salary but will pay excess if Indian tax higher stop willing pay more than eighteen thousand, taxable but dollar payable limited to salary minus cost of living in India stop suggest recommend terms for suitable candidates after interview for dollar sanction stop would prefer deputation under Public Law 402 to keep down cost stop concede free house".

16. On the 6th June, 1949, the Secretary sent a telegram saying that the absolute minimum annual salary of a high calibre chief engineer would be \$25,000 a year, subject to Indian Income-tax, alternatively 18,000 dollars per annum tax free and asked the Corporation to cable its preference.

17. On the next day, the Secretary wrote that Mr. B—— had turned down the offer finally and that he would now try to get Mr. S——. His terms were 25,000 dollars per annum, subject to Indian income-tax plus free house. Salary to be payable in dollars. He said that the

Bureau of Reclamation was still unable to recommend anybody and that nobody wanted to part with a really good engineer. He asked the Corporation to choose between 18,000 dollars tax free and 25,000 dollars subject to Indian income-tax.

18. On the 10th June, the Corporation wrote that they were prepared to pay the equivalent of 25,000 dollars per annum. On the 15th June, the Minister cabled to the Chairman as follows:—

“Your cable 1900 dated June sixth. Chief Engineer. Considered several high calibre engineers including B—, S— and T—. Find extremely difficult persuade topnotch engineers accept terms proposed. B— and S— have declined. Have just interviewed BRT— Acting Chief Engineer in North Pacific Division U.S. Army Corps of engineers with extensive experience in U.S., Canada, South-America, Europe and Russia, now engaged in important hydro-electric development in North Pacific Division. T— well recommended and appears possess right personality. He is willing to accept if terms made worthwhile. Requests 22,500 dollars per annum as net income plus other allowances including rent free house, free car and provident fund benefits. 75% of salary payable in dollars”.

On the 16th June, the Chairman sent the following reply:—

“For BR Sen from Mozumdar. Reference Sudhir Sen's letter June seventh and your cable fifteenth stop Morgan on consultation expressed preference for Reclamation Bureau experience to Army experience and considers Y— has exceptional experience and is good choice stop would request you consider this view and make your final selection stop willing pay upto Twentytwo thousand five hundred dollars tax free stop seventyfive per cent. of this payable in dollars”.

19. In his letter dated the 22nd June, 1949, the Secretary wrote:

“Your cable of the 16th instant to Minister Mr. B. R. Sen regarding the salary of the Chief Engineer has just reached me. This is good news. How I wish we could offer these terms earlier. In that case we would most probably have got B—. Although his wife was reluctant to come out, there are strong reasons to believe that the terms which he considered inadequate, proved decisive in finally making up his mind. Men like him are

easily put off by an approach that contains the slightest suggestion of bargaining. In fact, in the long-distance telephone call he told me that he did not like "horse-trading". There has been too much of lost motion in the search for a Chief Engineer. * * *".

20. In the same letter the Secretary said that "Failing the Bureau, our best 'bet' was S—— whose position corresponded to that of Chief Engineer in the Army Corps. But S—— has now quoted impossible terms, may be because he too felt that we were bargaining". And in his letter of the 24th June, the Secretary summed up the position as follows:—

"The choice now is: (i) to continue the search for a man of the same calibre * * * (ii) to go in for S——, (or T—— or C——); or (iii) to leave the matter open, for the time being and to take a decision after a thorough discussion with the Corporation on my return. I have decided in favour of (iii)".

It may be mentioned here that Mr. S—— was being offered under Public Law 402. C—— and T—— were available and apparently willing to come, but were rejected as not being absolutely first rate.

21. Dr. Sen returned home in July, 1949.

Difficulties of Dollar Exchange

22. We must interrupt this chronological account here to pursue the fortunes of the application for dollar exchange referred to in paragraph 8 above for paying the American chief engineer. We have seen that on the 24th May, 1949, the Chairman wrote to the Joint Secretary, Finance Department saying that about \$18,000 per annum would be required for the chief engineer and asking him to telegraph the department's informal agreement to the proposed expenditure of dollars. A little later the matter was discussed with the Finance Secretary who desired that a further note should be sent on the subject. This the Chairman sent on the 3rd June, 1949, in which he explained the case for the appointment of a chief engineer and asked for general approval to the release of the requisite dollar exchange. The file was marked by the Ministry of Finance to the WMP Ministry for advice. The WMP Ministry, without consulting the Corporation, advised the Finance Ministry that an American chief engineer was not indispensable, and that an Indian should do quite well. This is the more surprising considering that from the beginning it appears to have been taken for granted that an American chief engineer would be appointed and we have not come across any letter or direction, formal or informal, from the Ministry suggesting to the Corporation that an Indian chief engineer should be appointed.

23. As long ago as 1944, Mr. R. G. Casey, Governor of Bengal, said that as America had specialised in this type of engineering, an American Engineer should be brought to investigate the Damodar Valley Project. In pursuance of this recommendation, and in spite of opposition from certain British interests, the services of Mr. Voorduin, a senior engineer of the T.V.A., were obtained with the assistance of Lord Hallifax, British Ambassador in America, and Mr. Lilienthal, former TVA Chairman. Dr. Savage, the eminent American engineer visited the valley in December, 1944, at the request of the Government of Bengal and submitted a report. Mr. Voorduin prepared the "Preliminary Memorandum on the Unified Development of the Damodar River", which was examined by a technical mission specially brought out from America consisting of Mr. Ross M. Riegel, Head Civil Engineer, and Mr. Fred C. Schlemmer, Project Manager, both of the TVA, who gave it high praise. Dr. Arthur E. Morgan, first Chairman of the TVA, who was requested to inspect the project described it as being 'far more complicated than the TVA: to secure its full value will require engineering of a high order'. Dr. Trone wrote as early as October, 1949, as follows:

"So far, only the U.S.A. have executed projects of the magnitude of Damodar, entailing so many different engineering aspects that call for co-ordination of the whole programme in the hands of one single man with technical and administrative experience of the highest order. You will therefore have to look for a Chief Engineer in the United States,—the dollar shortage notwithstanding. I cannot sufficiently stress the need of such a man on the spot as soon as possible".

The WMP Ministry themselves (*vide* Shri Mozumdar, Additional Secretary and Administrator Damodar Valley Project's U.O. No. DVP/HQ/3/11/3/1, dated the 19th May, 1948) asked the Ministry of External Affairs for the services of not one but two chief engineers with TVA experience. They had moreover been fully aware of all the efforts that were being made by the Corporation to get an American engineer. The point had been specifically raised as recently as in the 9th May, 1949, conference of Participating Governments and it was explained on behalf of the Corporation that a top-ranking American chief engineer was being obtained with the help of the Chairman, TVA. When objection was raised, the Chief Minister of West Bengal pointed out that the appointment of a chief engineer was an administrative matter fully within the competence of the Corporation. If the WMP Ministry had disagreed with this view, one would have expected them to give either informal advice or if necessary, formal directions under section 48 of the Act, disapproving the proposed appointment of a foreigner as a chief engineer. But they seemed merely to acquiesce, obviously with mental reservations.

24. On receipt of the WMP Ministry's advice that an American chief engineer was not indispensable, the Finance Secretary wrote to the Chairman in his D.O. letter, dated the 23rd June, 1949, that although the dollars required were inconsiderable, yet in view of the administrative Ministry's opinion, the Finance Ministry would suggest further discussion as it was desirable in a matter of this kind to act on the basis of agreed conclusions.

25. Representations were, thereupon, made to the Government of India for reconsideration of the orders refusing dollars. The Chairman wrote to the Minister for WMP, and the Chief Minister of Bengal took it up with the Prime Minister. The result was that early in October, 1949, dollar exchange was made available. One would have thought that at least after that the WMP Secretariat would withdraw their opposition to the appointment of a chief engineer of the Corporation's choice, but the sequel will show that this was not the case.

26. Let us now resume the chronological narrative. Various names, such as those of General C—— Mr. S—— and Mr. T—— of the Army Corps of Engineers, were considered. They were either not available or were not accepted.

The Prime Minister Helps

27. On the eve of his departure for America early in October, 1949, the Prime Minister wrote to the Chairman saying that he agreed that "a really first rate chief engineer should be appointed for this very big and very fascinating work", that he would meet General W—— one of the candidates, and see what could be done. The Prime Minister did interview the General and a few others, and he also had discussions with the Bureau of Reclamation, the TVA and Mr. Lilienthal. No final selection could, however, be made. At the end of the Prime Minister's visit, a letter was received from his Secretary addressed to our Minister in the U.S.A. (No. D/S/11914, dated the 2nd January, 1950) giving the names of four candidates, General W——, General M——, Mr. C—— and Mr. A——, asking the Minister to commence negotiations with them and adding that the Chairman, DVC who was shortly proceeding to America would make the final selection.

Chairman DVC's Personal Efforts in America

28. The Chairman left for U.S.A. on the 17th January, 1950. During his stay there he considered a number of names. One of the four men suggested by the Prime Minister was considered too old, and the others were no longer available. The Chairman also tried at least two other candidates and in his letter to the Corporation dated the 25th February, 1950, reported that he saw no prospect of getting a

chief engineer in America "mainly because of the salary demanded" (\$ 30,000) by Mr. de L—— and others which was "exorbitant". Since the Corporation was prepared to pay 22,500 dollars tax free in June, 1949, it is not understood why a salary of 30,000 dollars taxable demanded by de L—— and another was considered exorbitant.

29. The idea of recruiting a chief engineer from U.S.A. thereupon receded into the background for the time being and the Chairman suggested that Mr. A. de Vajda, Soil Conservation Engineer, should be appointed chief engineer to work with the assistance of a board of consultants. As, however, Mr. de Vajda was not acceptable to the members, he suggested that an Indian chief engineer with adequate experience of dam construction might be considered, and asked his colleagues to make a selection without waiting for his return from America.

Twenty months elapse without a chief engineer: Public opinion hardens

30. Let us pause here and take stock of the situation. Nearly 20 months had passed since the establishment of the Corporation and yet no chief engineer was found. Not much progress had been made in construction owing, partly no doubt, to causes beyond the control of the Corporation, but the fact remained that there was nothing much to show to an expectant public. It is, therefore, not surprising that public opinion was hardening against the Corporation. The Participating State Governments were getting restive. The WMP Secretariat always critical, had become even more so.

The International Bank wrote about the same time that "the Bank feel that the most important matter now is the appointment of a chief engineer".

Finally Dr. Sen, Secretary of the Corporation wrote to the Chairman in America on the 3rd February, 1950, as follows:—

"The Chief Engineer problem has become very grave. It will be impossible to hold the front much longer, both internally and externally, unless a chief engineer is appointed immediately. Dr. B. C. Roy has raised this question at the last meeting of the Advisory Committee. The WMP Ministry is laying the blame at our door for not having appointed a chief engineer. The loan negotiations are bound to suffer unless a chief engineer is appointed straightaway. The Members are equally anxious to know whether any progress could be made about this matter".

31. In spite of all this the Chairman returned home in April, 1950 without a chief engineer.

32. At the Advisory Committee meeting of the 3rd May, 1950, the question of the appointment of Chief Engineer was again considered. The Chairman of the Corporation referred to the high cost of an American chief engineer and said that it was a question of how much the Corporation could afford to spend and how much dollar exchange could be made available for the purpose. The Secretary, WMP, also drew attention to the fact that the proposed salary to the American chief engineer would amount to something like Rs. 3 lakhs per annum including income-tax. Daily fees demanded by consultants, which were 150 dollars a day, would amount to Rs. 750 per day in Indian currency. The Chief Secretary to the Government of Bihar contested this argument by pointing out that the figure quoted was, no doubt, high but his Government had been paying double that amount as daily fee to a lawyer they had to engage in the Federal Court. The Chief Minister of West Bengal drew attention to the fact that professional people would "naturally charge high fees and this should not upset any one". The Chief Ministers of Bihar and West Bengal requested the Secretary, WMP, "to convey to the Government of India, the opinion of the two State Governments that irrespective of high fees or salaries of foreign technicians, they should be appointed whenever such appointment was considered necessary in the interests of speedier or better performance of the work." The Secretary, WMP, said that he had had the matter placed on the agenda of the Advisory Committee with the sole purpose of obtaining the views of the State Governments and that he would convey their views to the Government of India. It will be recalled that this was seven months after dollars were released in October, 1949, on the intervention of the Prime Minister and the Minister for WMP. It is noteworthy, however, that even after the meeting of May, 1950, the WMP Secretariat neither changed their attitude to the question of a foreign engineer (as subsequent events show) nor gave any indication to the Corporation that they would continue to oppose the appointment of an American chief engineer.

Search for an Indian chief engineer

33. Now to resume the story. The search for an Indian Chief Engineer was entrusted to Shri P. P. Varma, Member of the Corporation, while the Chairman was still in America. He visited Delhi, Uttar Pradesh and Madras in his efforts to find an Indian chief engineer. Three senior engineers were considered, viz., Shri V—, retired Chief Engineer, Madras, who said he was too old to take on a new job, Shri G— who declined on his appointment to the Union Public Service Commission, and Shri N—, who was considered too old by Shri Varma. A second line of possibilities was then tried. Shri T— refused. Shri M— of the Uttar Pradesh was not spared by his Government. A senior officer of the Central Waterpower, Irrigation and

Navigation Commission was offered by the Chairman of that body with great reluctance, but was considered by the Corporation not to have had enough experience in the construction of dams. An offer was then made to another Madras Engineer, Shri K—, who also declined. Shri V—, retired Madras engineer was then considered, but as he demanded Rs. 5,000 p.m. free of income-tax as salary, a free house and other amenities, he was dropped. The Chairman reporting the failure of the search for an Indian chief engineer to the Prime Minister in his letter dated the 21st August, 1950, asked for his help in getting the U.P. Engineer and summed up his conclusions, with which the Board of Consultants were in agreement, as follows:

either “(1) M—” (the U.P. officer) “as Chief Engineer with a foreign resident consultant to advise him for two years, or

(2) a foreign Chief Engineer for three years with one of the D.V.C. engineers as his understudy”.

Of these two he preferred the first and requested the Prime Minister to persuade the U.P. Government to spare him. The U.P. Government, however, declined to spare him. The Prime Minister sent the Chairman's letter to the Additional Secretary, W.M.P., for comments. The latter wrote in reply that he considered the two officers rejected by the Corporation as quite competent for the post of Chief Engineer and in particular, he pressed for the appointment of the officer who was rejected on the ground of old age. He concluded by saying:—

“If, however, the DVC cannot be persuaded or forced to trust N— I see no option but to let them select a foreign engineer of their choice and face inevitable criticism”.

The Prime Minister agreed that if the Corporation could not agree to take the engineer in question, thereon there was no option but to get a foreign engineer. The Corporation did not consider him suitable and continued their search for an American Chief Engineer.

34. One would have thought that since the engineer in question was not acceptable to the Corporation, the WMP Secretariat would withdraw their opposition to the appointment of an engineer of their choice. But the sequel will show that they did not.

The last phase: The search for a chief engineer ends: Mr. Komora appointed:

35. The search for an American chief engineer continued. Between May and August, 1950, three or four candidates were considered. The WMP Minister was informed that efforts were being made to get an engineer under Public Law 402. The Embassy cabled for a firm offer for the services of Mr. de L— accompanied by detailed terms of

contract and conditions of service. Mr. Harza of the Harza Engineering Co. of Chicago who took keen interest in the matter and who rendered great help to the Corporation in securing a chief engineer, suggested the name of Mr. F—— who had considerable experience in China and Russia and who demanded 25,000 dollars per annum free of Indian income-tax, a free house, car, chauffeur, etc. In answer to Mr. Harza's cable, the Corporation stated that they were prepared to offer 25,000 dollars taxable, plus free passage both ways for self and wife, a free furnished house, a free car and free medical attendance and informed the Embassy also.

36. On the 16th October, Mr. Harza wrote giving details of the latest position with regard to the Chief Engineer. He said that there were two candidates available, one Mr. Komora, and the other was Mr. de L——. As regards Mr. Komora, he said he seemed to be the only man available,

“Who would accept the position on your terms, and who has had appropriate experience. He is, in my opinion, the best you will be able to get on those terms. * * * If you had your choice, I would take de L——, but failing to get him. I would take Komora.”

37. On the 25th October, a cable was received from Mr. Harza saying that de L — had declined and that he recommended Mr. Komora. On the same day the Corporation authorised our Embassy to finalise the appointment of Mr. Komora on terms already indicated.

38. The Embassy finalised the appointment of Mr. Komora on the 7th November in consultation with Mr. Harza, and the former telegraphed the next day that Mr. Komora who had been approved by the World Bank, had been finally offered the appointment and would join in three weeks' time.

39. On the 14th November, a cable was received that Mr. Komora had accepted the appointment and would leave by the 25th November.

40. Meanwhile, the WMP Ministry had been enquiring from the Corporation as to the progress in the matter of recruitment of a chief engineer. On the 12th October, the Secretary wrote to the Ministry (Shri Neelakantam, Deputy Secretary) saying that the position regarding the appointment of a chief engineer had been explained by Shri P. P. Varma, Member, on the 28th August, 1950, and that all that they had to add was that the attempts to recruit an Indian chief engineer had failed. As the appointment could not be delayed any longer without injury to the public interest, steps had been taken to recruit a chief engineer from abroad. On the 26th October, 1950, Dr. Sen wrote to the WMP (Shri Neelakantam) asking for the release of

dollars for the chief engineer. He referred to his earlier letter of the 12th of October, and said that the Corporation had failed to obtain a qualified chief engineer in India inspite of their very best efforts during the past few months and that early in October the position had been explained by the Chairman to the WMP Minister, and that in view of the urgency of appointing a chief engineer without further delay, the Corporation had requested our Embassy to finalise the appointment of Mr. Komora. The terms were briefly stated, viz., 25,000 dollars per annum as basic pay payable in U.S. currency, subject to Indian income tax and subject to the proviso that if it exceeded the United States income tax, the difference would be re-imbursed. Finally, the Ministry was requested to treat the matter as urgent as Mr. Komora was due to sail in two or three weeks' time. A copy of this letter was also sent to the Ministry of Finance for early release of the requisite amount of foreign exchange.

41. Nothing happened for a week. On the 2nd November, 1950, the WMP Ministry telegraphed to the Corporation asking for the exact terms and conditions offered to Mr. Komora as also the powers and functions to be delegated to him in regard to administration, engineering and financial matters. This was more or less unnecessary and only caused delay because the principal terms had been summarised in Dr. Sen's letter and the powers and functions to be delegated to the Chief Engineer were a comparatively minor matter, which could have been settled at leisure. However, all the information was supplied the same day.

Paragraph 42 to 46 omitted.

Estimates Committee's criticism etc. considered

47. We now proceed to consider the Estimates Committee's comments on the various points dealt with by them.

48. (a) Appointment of Shri M. P. Mathrani.—The Estimates Committee say

"The Committee noted with surprise that till recently the Corporation did not think it necessary that there should be a Chief Engineer in overall control of the project as a whole. They also noted with regret that whereas the Government of India had appointed one Chief Engineer on the 23rd March 1948, the Damodar Valley Corporation soon after it came into being in July 1949 decided to dispense with his services, as they were doubtful whether it was at all necessary to have one Chief Engineer in overall control of the project."

And again

"It was an unwise act to dispense with the services of a Chief Engineer who was already in position on the plea that none was required".

The reference here is obviously to Shri M. P. Mathrani. In the notification of the Government of India dated the 23rd March, 1948, relating to the appointment of Shri Mathrani, he was described as Chief Engineer, Damodar Valley Project. The Administrator pointed out immediately that this was an error, the intention being to appoint Shri Mathrani, Chief Engineer, Barrage and Irrigation only. A fresh notification was accordingly issued. The appointment was for six months only and Shri Mathrani's continuance was subject to the approval of the Corporation, which did not renew his appointment for reasons which need not be gone into here, and Shri Mathrani's connection with the Corporation thereupon ceased. Even a casual perusal of the earlier paragraphs of this chapter will convince any one that the Corporation was never doubtful of the necessity of having a chief engineer. In fact, if they were convinced of anything at all, it was of the necessity of having a chief engineer in overall charge of the project. We have seen that to secure such an officer Mr. Mozumdar in his capacity as Additional Secretary WMP wrote before the establishment of the DVC to External Affairs Ministry and the Corporation within four months of assuming office, wrote to the Chairman of the Tennessee Valley Authority asking for his assistance. Thus both the statements are incorrect, viz., that the Corporation dispensed with the services of the chief engineer and that they did not think one was necessary. These statements were first made by the WMP Secretariat in the memorandum to the Cabinet Committee, repeated by them in their Factual Note and accepted by the Estimates Committee.

(b) Non-consultation with the Government of India, in the matter of appointment of Mr. Komora.—The Estimates Committee in para. 48 of their report say that "It appears that the Government of India were not consulted in this matter nor informed of the appointment of Mr. Komora as Chief Engineer to the Damodar Valley Corporation." From the chronological account given above it is evident that this criticism is incorrect. The WMP Ministry had been kept informed of developments from time to time, and the Ministry on their part used occasionally to make enquiries in regard to the progress and the results of the search for a chief engineer.

Moreover many prominent personalities, including the Prime Minister, the present Finance Minister, our Ambassador/Minister in Washington etc. had taken part in the search. The Additional Secretary, WMP Ministry, himself tried, although unsuccessfully, to get Mr. Blee, of the TVA, under the Prime Minister's directions. It is inconceivable that the WMP Ministry were unaware of the efforts that were being made to obtain an American chief engineer.

On the 12th October, 1950, the Corporation had informed the Ministry that efforts to recruit an Indian Chief Engineer having

failed, steps had been taken to recruit a qualified engineer from abroad and the Indian Embassy in Washington had been requested to help in the matter. On the 26th October, i.e., the day after the Corporation had asked the Embassy to offer the post to Mr. Komora, the Corporation had requested the Ministry to obtain sanction to the dollars required. The terms were also briefly indicated. A copy of this letter was also sent to the Ministry of Finance. Further information asked for by the WMP Ministry a week later was supplied immediately.

We are therefore of the view that the WMP Ministry were kept informed from time to time of the developments in the Corporation's search for a chief engineer, culminating in the appointment of Mr. Komora. The Corporation had under the Act full freedom to appoint its chief engineer. The position that they should appoint a chief engineer of their own choice, if the candidate suggested by the WMP Secretariat was not to their liking, had been accepted by the Prime Minister on the advice of the Additional Secretary WMP himself. The Chief Minister of West Bengal, at the Inter-State meeting of the 9th May, 1949, had stated that as the DVC was responsible for the execution of the project it should have full freedom to choose its chief engineer. The same view was taken as long ago as October, 1949, by the WMP Minister when he noted on the 5th October, 1949, that "as I have already stated in the other file, this is a matter in which we cannot interfere beyond a certain point." Indeed, if there was ever any matter on which the DVC could have been congratulated, it was their appointment, however belated, of the chief engineer.

(c) Were serious efforts made to appoint an Indian as Chief Engineer?—In para. 49 (ii) the Estimates Committee writes: "The Corporation have deemed it necessary to appoint a non-Indian to the post when no serious attempt seems to have been made to find a suitable Indian for the job". We are satisfied that the efforts made by the Corporation to secure the services of an Indian engineer were genuine and serious. In their efforts, they even enlisted the assistance of the Prime Minister and the Chief Minister of West Bengal. The Prime Minister wrote personal letters to the Chief Ministers of U.P. and Madras, and Dr. B. C. Roy wrote to the Chief Minister, U.P. for help in getting an Indian Chief Engineer. Only one engineer was rejected on the ground of excessive salary demanded. The terms demanded by him have been mentioned earlier. When they did not find an Indian engineer who fulfilled all their requirements, they turned finally to America. We are of the opinion that no blame attaches to the Corporation in this regard.

49. We will now deal with the remaining point raised by the Estimates Committee in para. 51 of their report.

"It is, therefore, essential that in order that after his" (the present Chief Engineer) "term of appointment concludes a responsible Indian Engineer may take over from him a competent person should be placed as understudy to the present Chief Engineer so that he is fully equipped with all the technical administrative experience by the time he is called upon to take over the charge of Chief Engineer, and the selection of such a person should be entrusted to a Committee of Experts of which the present Chief Engineer should be the Chairman".

We feel that the choice of the understudy should be left to the Corporation and that it should be on an all-India basis.

Conclusion

50. The main question, however, remains and that is the enormous delay that occurred in appointing a chief engineer; for it may sound incredible, but it is true that for the first two and a half years of their existence the Corporation had no Chief Engineer in charge of its multifarious and highly technical operations. The results are writ large on the work of the Corporation—inexpert advice and frequent changes of design, increase in costs, waste of public funds. It is tragic that although the Corporation were fully convinced of the urgent necessity of appointing a chief engineer from the earliest moment, yet they wasted 2½ years in getting a suitable officer. The reason is not far to seek—indecision, vacillation and difficulty to make up their minds. If they had been a little more determined, they could have secured a first rate Chief Engineer early in 1949 when their Secretary was in America. Even assuming that that was not possible, it is difficult to understand why when the Chairman himself went to America for this purpose among others and stayed there for about three months, he did not take the plunge and bring a competent engineer with him. For this vacillation and indecision in appointing the Chief Engineer the Corporation is as a whole technically responsible, but we regret to have to say that the personal responsibility of the Chairman in the matter is by no means negligible.

CHAPTER VIII

THE ADEQUACY OF THE DAMODAR VALLEY CORPORATION ACT, 1948.

The background of the Damodar Valley Corporation Act has already been sketched in the earlier portions of this report, how the idea of a corporation was first conceived, how it matured and how it was finally enshrined as an Act of the Legislature. Both Mr. Voorduin and Mr. Mathews, Chairman of Central Technical Power Board, stressed the necessity of entrusting the execution of the Damodar scheme to a semi-independent body constituted on the lines of the Tennessee Valley Authority. The Inter-Provincial conferences which followed unanimously endorsed this recommendation. A draft constitution was prepared and scrutinised by the representatives of the Governments concerned. The agreed draft was put into the form of a bill and introduced into the Constituent Assembly (Legislative) and referred to a Select Committee which altered it in a few important respects. It was passed by the Legislature as amended by the Select Committee. It is thus clear that the draft statute was long on the anvil, a great deal of thought and hard work went into it; it underwent the usual departmental processing; it was discussed at least at two inter-provincial conferences; the Select Committee sat over it for several weeks and the Constituent Assembly debated it for four days. Considering that it was essentially a compromise piece of legislation—compromise on many matters between the Centre and the two Provincial Governments, naturally jealous of their powers such as the resettlement of displaced personnel, irrigation in their territory, land acquisition procedure to be followed, Bihar's right to appoint its representative on the Corporation, Bengal's contention in regard to construction priorities, allocation of costs, Central contribution to flood control, and so on—it is a remarkable achievement, terse, brief and well-considered. It was based on the Tennessee Valley Authority model, but did not follow it in every respect, and an attempt was made to bring it into tune with Indian conditions and requirements, and in so doing some essential provisions of the Tennessee Valley Authority Act had to be omitted.

2. Nor is Amendment of the DVC Act easy. It is possible in one of two ways: either the Legislatures of West Bengal and Bihar have to pass appropriate resolutions under Articles 252(1) of the Constitution, or it will have to be declared by an Act of Parliament with reference to entry 56 of the Union List that the regulation and development of the Damodar Valley under the control of the Union is expedient in the public interest.

3. In judging the adequacy of the Act we must view it from this angle and also bear in mind that any change, lightly proposed, even after going through all the constitutional formalities, would have the effect of throwing into the melting pot the whole structure of the Act, thus jeopardising its very basis.

4. While therefore we have been chary of suggesting amendments to the Act, the same considerations do not apply to our recommendations in regard to other river valley corporations that may be created in the future. We have listed in one place (para. 23) the limitations that may be imposed in the powers of such other corporations. Proposals regarding changes in the DVC Act have been made in the relevant paragraphs.

5. The first question that arises for consideration is whether a public corporation such as is envisaged in the Act is the best instrument for executing the policy of integrated resources development. The idea of a public corporation as a method of decentralised administration is not entirely new to India. Municipalities, port trusts, improvements trusts, universities are all examples of such decentralised administration. In Great Britain with the advent of the Labour Government the corporation idea has been increasingly used for the administration of nationalised industries. In India also there is an increasing tendency to employ this device; the Delhi Road Transport Authority Act, the Electricity (Supply) Act, 1948, and the Air Corporations Act, 1953, are instances in point. But neither in India nor in Britain had the conception been applied to the solution of the water problem of a region before the passage of the Damodar Act. The Tennessee Valley Authority is the first instance of its kind.

Why a Public Corporation?

6. A public corporation is, as has been stated above, an experiment in decentralised administration which, in the words of President Roosevelt, is "clothed with the power of Government but possessed of the flexibility and initiative of a private enterprise". "The underlying reason for the creation of the modern type of public corporation" says William A. Robson in his 'Problems of Nationalised Industry', "is the need for a high degree of freedom, boldness and enterprise in the management of undertakings of an industrial or commercial character and the desire to escape from the caution and circumspection which is considered typical of government departments". He goes on to say that "the original impetus to the movement for public corporations came from a twofold desire to secure freedom from parliamentary supervision over management on the one hand and Treasury control over personnel and finance on the other. Both these normal features of British Government were regarded rightly or wrongly, as likely to hamper efficiency and restrict initiative in undertakings of an industrial or commercial character".

Drawbacks of a departmental agency

7. It is considered, and not without reason, that departmental interference, financial controls and the redtape inherent in the official form of administration prevent flexibility in operation, restrict initiative, militate against speed, hamper efficiency and enterprise. The drawbacks of departmental agency are well-known and described by Shri A. D. Gorwala in his 'Report on the Efficient Conduct of State Enterprises' thus :

"In many ways it is the direct negation of the requirements of autonomy. It militates against initiative, flexibility—in the sense of freedom from the usual administrative procedure regarding financial sanction, government pay scales, recruitment, dismissal, etc.—the business angle and business methods, in short, the setting up of that sound 'State enterprise tradition', postulated as essential for the success of State enterprises and the proper solution of the immediate problem. For, departmental management means management by one or more Administrative Departments as part of their larger routine, inevitably in conjunction with the Finance Department as part of its own routine, with an attempt in some instances to minimise the routine aspect of the disposal by entrustment to a committee formed of departmental representatives, but in every case against the background of the rules, regulations and procedure inseparable from ordinary administration and of the plenary control of Minister and Parliament, also inseparable from that administration."

Other experiments

8. At the time the Damodar Project was undertaken two other projects were also commenced, namely the Bhakra-Nangal in the north and the Hirakud in the east of India. It is fortunate that in each of these a different method of administration is being tried in order to enable the country to judge which method is the best and most calculated to achieve the object in view, viz., the development of the water resources of a river basin. The Bhakra-Nangal project traverses the States of the Punjab, PEPSU, Bilaspur and Rajasthan, while the Hirakud Project is confined to the Orissa State. In the case of Bhakra, each Provincial or State Government was to construct the part of the project falling within its territory through its own Public Works Department, except that in respect of the construction of the Bhakra dam and appurtenant works which lie partly in the Punjab and partly in Bilaspur, the work was to be undertaken by the

Chief Engineer, Punjab. Soon difficulties arose because of technical and financial sanctions being accorded by distant authorities sitting either in Simla or Delhi, and the need for high-powered authority capable of taking decisions quickly and on the spot, coordinating the various branches of work and fixing priorities was felt and hence a "Control Board" was established. This Board consists of the Governor of the Punjab as Chairman in his personal capacity, the Consulting Engineer to the Government of India as Vice-Chairman, a representative each of the Central Ministry of Finance and the Finance Department, Punjab, Chief Engineers of the Punjab, PEPSU and Rajasthan, Chief Commissioner, Bilaspur, and one representative of the Himachal Pradesh Government. The Central Board is in overall charge of the technical and financial problems relating to the construction of the project, the actual construction being carried out by the Chief Engineer concerned. The State Governments have delegated to their respective Chief Engineers, their powers to contract for works, supplies and services at the direction of the Control Board.

9. The Board is assisted by an Advisory Board, with the Consulting Engineer to the Government of India as Chairman, and certain officers of the various Governments concerned as members. The Advisory Board is the forum for discussions in regard to the overall plan, programme of construction, progress, and for resolving differences on technical matters connected with the project.

10. The Hirakud project has a similar tale to tell. In the beginning, the project was placed under a Chief Engineer appointed by the Centre. All technical sanctions had to be accorded by the Central Water and Power Commission and all financial sanctions by the Government of India. To provide effective *liaison* between the Centre, the Government of Orissa and the officers in charge of the project, two Boards had been subsequently set up, (a) the "Development Board" to advise on the development part of the project, land acquisition and resettlement of displaced people with the Chief Minister of Orissa as Chairman, the Chairman, Central Water and Power Commission, the Chief Engineer and the Financial Adviser of the Project, and certain senior officers of the Orissa Government as members, and (b) the smaller "Contract Board" consisting of the Chief Minister, Orissa and officers of the Centre and those in charge of the project dealing with all matters relating to contracts.

11. As this administrative organisation was also not found to be effective or conducive to efficiency or despatch, it was decided to alter it to the pattern already working in Bhakra-Nangal. Thus the Hirakud Control Board with similar composition and functions was established about a year ago.

12. The Hirakud Development Board, on which sit certain senior officers of the Orissa Government and the Chief Engineer and the Financial Adviser of the Project, is responsible for the development aspects of the Project like irrigation, agriculture, electricity distribution and load development, industries, community benefits, etc. It is, however, not concerned with the technical aspects of the scheme.

13. Even when the projects were under purely departmental management, the requirements of the situation rendered it imperative to have some central authority authorised to solve the manifold problems that arise. This happened both in Bhakra and Hirakud and these bodies, call them Control Board, Development Board or anything else, are the germ of the Corporation idea. Thus both in Bhakra and Hirakud, we have unconsciously been travelling towards the semi-autonomous high-powered public corporation which does away with much of departmental red-tape, reduces delays to a minimum and facilitates the efficient and economic execution of projects. But the members of these Boards have to act against the background of the rules, the regulations and the procedure inseparable from ordinary departmental administration and the plenary control of Government and the Minister. Moreover, it may not be possible for the Boards having regard to their composition to meet oftener than once in a few months. Though the Bhakra and Hirakud experiments have worked fairly well, we are convinced that the results would have probably been much better had corporations of the kind described above been established from the outset.

14. In regard to the Bhakra Project, the Estimates Committee have recommended that the feasibility of having a semi-autonomous board may be considered. In Hirakud also we found that opinion was strongly set in favour of the establishment of some such body as the Damodar Valley Corporation. We, therefore, conclude that on an overall view of all the circumstances the semi-autonomous corporation is the best method yet devised, of executing multi-purpose projects efficiently and economically. Where it has failed to achieve results, it is more because of the defects in the personnel of the Corporation or of Government departments or of both than anything inherent in the Corporation concept itself.

15. But the Corporation method has its own limitations; and it is best to know them.

16. Public Corporations have to start from scratch in the matter of staff. Good engineers are already employed, and the market, always limited in India, is more so at present when many works are in progress. Time is bound to be taken in building up an organisation, and even then, the quality of the staff may not be so good. We have

suggested measures to overcome this difficulty to a certain extent in para. 34 of Chapter IX.

17. Secondly, the creation of a corporation implies the curtailment of Governmental authority and Parliamentary control. While the relaxation of Treasury control and Parliamentary authority may be justified in case of a commercial venture where the success or failure of an enterprise can be judged from the results of its working, it would not be prudent to adopt this principle in the case of non-commercial activities of Government without proper safeguards as indicated in para. 23.

18. In passing we would mention that as the success of the Corporation depends to a very large extent on the quality of the persons manning it, the greatest possible care should be taken in their selection.

19. Subject to these remarks, we have no doubt that the corporation method will be the best for the administration of multi-purpose river valley projects spreading over more than one State, as it ensures that the project is administered by an impartial statutory authority. Unified control of all the water resources of the whole region leading to its best use is also made certain.

Implications of acceptance of the Corporation idea: Limited Governmental and Parliamentary Control

20. The acceptance of the Corporation idea implied the removal of Treasury control and the checks imposed by the Civil Service Regulations. It also means the limitation of the authority of Government and Parliament in respect of matters which are dealt with finally by the statutory corporation. "It has long been recognised", says Professor Robson,

"that while Parliament has a right to discuss and determine matters of major policy concerning the nationalised industries, the day-to-day conduct of their business by the public corporations should be immune from Parliamentary inquisition. The position was first enumerated in the report of Broadcasting Committee set up in 1925. 'We assume', said the report, 'that the Postmaster-General would be the Parliamentary spokesman on broad questions of policy, though we think it essential that the commission should not be subject to the continuing ministerial guidance and direction which apply to Government offices. . * *. Shortly after the B.B.C. was established in 1927 the Postmaster-General stated in Parliament that he was responsible for questions of

general policy, but not for questions of detail and particular points of service. * * * *

"On December 4, 1947, Mr. Herbert Morrison, then Lord President of the Council and Leader of the House, stated the principles which would determine the attitude of Ministers to questions about the work of the socialized industries. Under recent legislation, he said, boards have been set up to run socialized industries on business lines on behalf of the community: and ministers are not responsible for their day-to-day administration. A large degree of independence for the boards in matters of current administration is vital to their efficiency as commercial undertakings. A minister is responsible to Parliament for action which he may take in relation to a board, or action coming within his statutory powers which he has not taken. This is the principle that determines generally the matters on which a question may be put down for answer by a minister in the House of Commons. Thus the minister would be answerable for any directions he gave in the national interest, and for the action which he took on proposals which a board was required by statute to lay before him."

"It would be contrary to this principle, and to the clearly expressed intention of Parliament in the governing legislation, if ministers were to give, in replies in Parliament or in letters, information about day-to-day matters. Undue intervention by the minister would tend to impair the board's commercial freedom of action."

21. We are in complete agreement with these views which merely postulate in different language the accepted parliamentary convention that "accountability is commensurate with responsibility" and that "Ministers can only be questioned where responsibility is accepted"

22. If Parliament creates a statutory authority, entrusts to it certain duties and responsibilities and makes it free to take its own decisions, Government, which is not responsible for these decisions, cannot be held accountable for them. Further, if it is held that questions can be freely asked about the working of a Corporation, there will be a tendency on the part of the Corporation to avoid responsibility, and seek the direction and advice of the Minister, or the department concerned in every matter thus defeating the object with which the corporation has been established. The lack of initiative, and absence of quick decisions, for which Government departments are

blamed, would creep into the working of the Corporation. Ministerial interference will tend to grow. The limitation of Government's authority and accountability to Parliament in respect of matters transferred finally to the Corporation is thus, inherent in the adoption of the Corporation method.

23. It is necessary to lay down clearly the duties and powers of a corporation for the future.

- (1) A Corporation should be created only when a project has been investigated in sufficient detail, and a fairly firm estimate has been sanctioned by Government, see para. 50 *infra*.
- (2) Within the sanctioned project estimate, the Corporation should have full power to execute the project, without any outside interference. The Corporation should not have any power to modify scope of the project. That power should vest only in Government.
- (3) If the project estimate is likely to be substantially exceeded, the Corporation must come up to Government for revised sanction.
- (4) After completion of the project, the Corporation should have full powers to run its commercial or quasi commercial activities, irrigation, navigation, power and flood control.
- (5) In regard to non-commercial activities like soil conservation, afforestation, etc., schemes should be submitted by the Corporation to Government for approval, before they are taken up. Such schemes should be implemented only to the extent approved by Government.
- (6) The budget estimates of the Corporation should be subject to the approval of Government.
- (7) Power should be taken by Government to give directions "as to the exercise and performance by the Corporation of its functions" somewhat on the lines of the Air Corporations Act, 1953.

The powers reserved for Government under these proposals should vest in the Central Government, as it would obviously be impossible for a Corporation to consult different Governments, which might give differing decisions.

In other respects the scheme of the DVC Act may be followed.

24. The Estimates Committee have recommended that full Parliamentary control over the various river valley schemes should be ensured; that all the plans relating to a scheme should be laid before Parliament as soon as the scheme is sanctioned, together with an explanatory memorandum, and that changes in the plans or estimates should be got approved by Parliament after they are first examined by the Estimates Committee. We are unable to agree in these suggestions in so far as statutory Corporations are concerned, as they would have the effect of placing them in a position worse than that of Government departments.

25. We now proceed to examine the adequacy of the DVC Act under the following main heads :

- (1) Constitution and membership,
- (2) Appointment of certain superior officers: Financial Adviser and Secretary,
- (3) Other limitations on the autonomy of the Corporation.
- (4) Financial Provisions,
- (5) Accounts and Audit,
- (6) Advisory Committees,
- (7) Functions of the Corporation, and
- (8) Land Acquisition.

Constitution and membership of the Damodar Valley Corporation

26. Under section 4, the Corporation consists of a Chairman and two members appointed by the Central Government after consultation with the State Governments of West Bengal and Bihar. We do not view with favour, for obvious reasons, the provision that the members of the Corporation shall be appointed "after consultation with the State Government". The duty of the Corporation is to take an overall view of its functions which will be difficult if some members are expected to act as the nominees of certain regional interests. Although we hasten to add that the present representatives of Bengal and Bihar have risen fully above parochial considerations, we nevertheless consider that it is not a sound principle to provide for regional representation in corporation of this kind as it is calculated to defeat their very object. Although, as the law stands at present, it is not obligatory on the part of the Central Government to appoint the nominees of the State Governments, yet

in actual practice it becomes difficult to reject their recommendations. We are, therefore, of the view that appointments should be in the absolute discretion of the Central Government which would then select men whom it considers the best and the most suitable. Accordingly, we recommend the omission of the words "after consultation with the State Governments" in section 4 (1) of the Act.

27. The Act lays down that every member shall be a whole-time servant of the Corporation. We have examined other alternatives and are of the view that a mixed body of whole-time and part-time members is not workable. If there are part-time members, it may become difficult to arrange for Corporation meetings frequently. If decisions have to wait till dates convenient to all the members can be found, no meeting will be possible maybe for months. Since the very purpose of creating a corporation is expeditious, despatch of business, we cannot recommend an arrangement which is likely to result in delays. We do not, therefore, think that any change is necessary in this regard.

28. If both Chairman and members are appointed for the same period, they all go out of office on the same day and the Corporation will start with a completely new body and all the old experience will thus be lost. It is, therefore desirable to stagger the period of membership as has been done, for instance, in the Tennessee Valley Authority.

Strength of the Corporation

29. A Chairman and two members would appear to be sufficient. There is not enough work for more. Moreover, a larger body, besides being unwieldy, may lead to differences and friction.

Qualifications of Members

30. No positive qualifications are prescribed for members, though members of the Central or State Legislatures and persons having any interest in the contracts or the works of the Corporation are disqualified for appointment. It is, of course, recognised that the ablest men should be selected for appointment, for the success of the Corporation depends almost entirely on the calibre of the men selected to man it. These men, said Shri Gadgil in the Assembly, "should have the vision of the poet, the zeal of the pioneer, and the capacity of a practical administrator" and must possess "the highest integrity, incorruptibility, 'high intelligence' and a 'clear conception of economic development in India on modern scientific lines, especially in the industrial and agricultural field; and alignment of economic life on the cooperative basis', and 'fairly wide experience

of men and affairs'. I would say that men possessing these qualifications in any walk of life would do well".* It is thus clear that only the best qualify for membership of the Corporation.

31. The question whether it should be prescribed in the Act that any technicians, *qua* technicians, shall be appointed to the Corporation was raised when the bill was before the Legislature. To a suggestion of a Member that there should be one competent civil engineer and one electrical engineer as members of the Corporation, Shri Gadgil replied:

"He wanted technicians to be placed on the Board. I may inform him that when we accepted this model we carefully studied the suggestions he made, and we took the view that the technician should have as little as possible to do with the administration. If Shri Santhanam or his friends can convince us in the Select Committee that a different pattern of organisation for the purpose of execution of this great scheme is likely to be more efficient, I certainly promise that I shall consider it."**

When another Member reminded "the Honourable Minister that in the Electricity Bill that he introduced only a few days ago, he has laid down that one of the members shall be an engineer, another a person well versed in commercial accounting and a third shall be an electrical engineer", Shri Gadgil replied :

"The answer to that Sir, is that the Board under the Electricity Act is a Board which has to deal with technical matters. The Board here has to deal with administration." **

32. The Select Committee rejected the suggestion that the statute should prescribe the appointment of engineers or other technicians on the Corporation.

33. In view of this, the general feeling in the House and the assurances given by the Minister in charge that merit and merit alone would count in making appointments to the Corporation, another member who had given notice of an amendment to the effect that there shall be one electrical and one civil engineer among the members, withdrew his amendment. It is thus clear that the Legislature definitely rejected the proposal that the statute shall prescribe the qualifications of members.

* Constituent Assembly (Legislative) Debates, Vol. I, 1948, page 756.

** Do Do., Vol III, 1947, page 1948.

34. Nevertheless in paras. 44 to 46 of their report, the Estimates Committee have criticized the composition of the Corporation and stated:

“One should have expected specialist engineers or financial experts on the Board but instead there are non-technical persons who have to be guided in their decisions by the advice given to them by their subordinate technical staff * * * *. In a corporation of this character the Engineer and Financial expert should be so knit together that they have an authoritative voice in the framing of decisions on behalf of the corporation. ***** It would have been more appropriate and conducive to efficiency if the Corporation consisted of a qualified engineer, a financial expert besides an administrator. The position of the Financial Adviser or the Engineer who are the main props, has been relegated to the background and there are no means whereby it can be ensured that their advice is a determining factor in the decisions of the Corporation.”

35. It seems to us inappropriate to lay down by statute that one member shall be an administrator, another an engineer and a third a financial expert. The Section as it stands at present gives complete freedom to Government to appoint the best men available. The best men are not necessarily non-technicians. There is and there can be no bar against the appointment of an engineer or a technical expert, if he has the other qualifications.

36. In this connection, we would like to invite attention to the trend of recent legislation in the U.K., under which the kind of experience necessary for membership of a public corporation created for the administration of nationalised industries is prescribed by law. Speaking generally, the tendency is to prescribe administrative, financial and technical experience of the type necessary for the running of the industry, as well as the experience of labour management. The Boards generally consist, *inter alia*, of

- (1) a person with experience of the industry, usually a high executive of the time when the industry was under private management,
- (2) a specially selected civil servant,
- (3) a financial expert,
- (4) a trade union official, and
- (5) an air marshal, or a general, thrown in.

Differing views are held on this question, some favouring a purely non-technical board; others quite the opposite. Arguments can be advanced by both sides.

37. We have given some thought to this question and have come to the conclusion that, although we do not recommend that qualifications should be prescribed by the statute we consider that in the selection of the personnel of the Corporation "the functional element", in the words of Shri Gorwala, "may appropriately be given more attention in view of the nature of the tasks a Corporation is likely to be called upon to perform".

"Policy-making" versus "Functional body"

38. The next question that arises for consideration is what is the better type of Corporation—"the policy-making" or the "functional". Much controversy has raged round this question. As the terms indicate, while the policy-making board concerns itself largely with general policy, administration, supervision and control, the functional board is one in which the members of the Corporation also act as departmental heads, e.g. the engineer-member would be chief engineer in actual overall charge of the design, construction, etc., the finance member would be the financial adviser in charge of financial matters and accounts.

39. The Estimates Committee, in paragraph 105 of their report, recommend what may be termed a functional body as opposed to a policy-making one. In every country there are champions of both types of organisation, and, in fact, a plausible case could be made for either.

40. We have studied this problem and feel that the "functional corporation" is less effective as a directing organ than the "policy-making" corporation. Members of a functional corporation being executive heads of their departments are as a rule unable to devote undivided attention both to the numerous problems of the Corporation as a whole and to the day-to-day administration of the departments under their charge. Besides this combination of functions deprives the members of their detachment. In the functional set up there is over-centralisation and a distinct danger of vertical compartments with divided loyalties being formed inside the organisation with the functional member at the head of each. We would, however, add that whatever method we may adopt, in the ultimate analysis it is the quality of the members that counts. On the whole, we are doubtful whether a Corporation composed of executive heads as envisaged by the Estimates Committee would

be the best. Having regard to all the circumstances we consider that the policy-making corporation is in every way better than a functional board.

Appointment of certain superior officers

41. The Corporation is assisted by a Financial Adviser and a Secretary, both of whom are appointed and removable only by the Central Government. The conditions of service of the Financial Adviser and Secretary are regulated by rules made by the Central Government. The Financial Adviser advises the Corporation on all matters relating to revenue and expenditure. The functions and duties of the Financial Adviser are prescribed by rules made by the Central Government. The Secretary is the chief executive officer of the Corporation.

(a) **The Financial Adviser.**—The Damodar Valley Corporation Bill, as introduced in the Legislature, provided only for the appointment of a Treasurer, but the Select Committee converted the office of the Treasurer, into that of the Financial Adviser. In commending this change to the Constituent Assembly, the Minister in charge pointed out that the Corporation was the first of its kind in the country and in view of the large volume of expenditure of public funds that the Corporation was to control, it was only proper that it should have at its disposal the advice of a financial expert. The Minister assured the House that the object of appointing the Financial Adviser was not “to create impediments or to give opportunities for red-tapism or create scope for delay in the normal and day-to-day work of this Corporation” but that it was “in the best interest of the Corporation, a sort of safeguard for the taxpayer and to give sufficient faith for him that whatever he has contributed for the successful working out of this scheme will be well spent”.*

Though the Financial Adviser is an officer of the Corporation, he enjoys under the Act an independent status; he is appointed by the Central Government and his salary and the conditions of his service as well as his functions and duties are prescribed by the Centre under the rules. He is thus in a position to tender independent and unprejudiced advice to the Corporation. It is indeed true that the Corporation is not bound by the advice given by him and may in the last resort over-rule him. This is essential to preserve the overall statutory responsibility of the Corporation. It can be safely assumed, however, that no responsible statutory corporation would lightly set aside the advice of its financial expert. And it is significant that no instance of any serious difference of opinion between the Corporation and the Financial Adviser has been brought to notice

*Constituent Assembly (Legislative) Debates, Vol. I, 1948, Pages 701 & 702.

and the fear that the Financial Adviser is not an adequate safeguard against financial extravagance or waste is not borne out by the experience of the past few years. The fact that he may be overruled by the Corporation has given rise to the theory that he is subordinate to the Corporation, which is incorrect. In the Inter-State Conference of the 5th May, 1951, "a convention" was established against the wishes of the Corporation that whenever there was a difference of opinion between the Financial Adviser and the Corporation, he should report the matter for decision to the Government of India in the Ministry of Finance. This has the effect of divorcing responsibility from accountability. The Estimates Committee has criticised the convention as a procedure "far from satisfactory both from the point of efficiency and promptitude in the execution of work on the spot" and that "this compromise is likely to lead to more difficulties and considerable delays in arriving at various decisions". On the assumption that for all practical purposes the Financial Adviser comes under the administrative control of the Corporation and on an alleged report of the Comptroller and Auditor-General that "as the Financial Adviser is subordinate to the Corporation there is great difficulty in the financial control being exercised", the Estimates Committee has recommended that the Financial Adviser, to be effective, should be made a member of the Corporation. As pointed out above, the Financial Adviser is not under the control of the Corporation, administrative or other. The Financial Adviser has told us that he has no knowledge of the alleged report by the Comptroller and Auditor-General. The Comptroller and Auditor-General has told us that in his opinion the Financial Adviser should not be a member of the corporation and that this convention was inappropriate. He added that, as a result of his observations during recent years, he had come to the conclusion that any system of financial control which had the effect of removing the financial responsibility of an executive authority and transferring it in the last resort to an extraneous body was unsound and inconsistent with the conception of the Corporation itself. We agree. In our opinion, therefore, no change in the status of the Financial Adviser is required. We may note in passing that the Financial Adviser has never so far acted in pursuance of this convention and reported any matter to the Finance Ministry. Nor would it be necessary under the changes which we have in view. We recommend, therefore, that this convention may be abrogated.

(b) **Secretary.**—It has been suggested that the Secretary being the chief executive officer of the Corporation, should be appointed by them and be under their disciplinary control. Whatever the theory may be, we are of the opinion that the present arrangement is the best and the most suitable in the circumstances existing in the country and we propose no change.

Other limitations on the autonomy of the Corporation: Governmental and Parliamentary control:

42. But these are some, but by no means all, or the only, limitations on the autonomy of the Corporation. There are also those imposed by Governmental and Parliamentary control. We shall now turn to them.

43. There was a time when it was thought that a public corporation should not be fettered by any control—Government or Parliamentary: its management should be entrusted to good men who should be left to do their best and, should be got rid of if their best is not good enough, but in recent years it has come to be recognised that some control must be provided to safeguard the national interest. It has, however, been realised that such control should not encroach upon the administrative independence of the corporation and should not detract from its managerial responsibility. Although control is essential, its excessive use, which tends to undermine the very principle on which it is founded, is not desirable. It should, moreover, be exercised in such a manner as not to dwarf the initiative, the enterprise and the drive of the Corporation. The following controls have been imposed by the Act:—

- (i) The Corporation is required to submit to the Participating Governments and lay before the Central and State Legislatures concerned its annual budget estimates, financial statements and annual reports in the prescribed form. (Sections 44, 45 and 46.)
- (ii) The accounts of the Corporation are maintained and audited in such manner as the Central Government may, in consultation with the Comptroller and Auditor-General, prescribe. (Section 47.)
- (iii) The Act enables the Central Government to issue binding instructions to the Corporation on questions of policy and the former is the sole judge of what is a policy question. (Section 48.)

It would be relevant to consider in this connection the forms of governmental control provided in like U.K. enactments. Besides the provision regarding submission of annual reports, there is usually the further provision enabling Government to obtain any information from the Corporation at any time. Government has the power to give "directions of a general character" in relation to matters affecting "the national interest". Government holds consultation with the governing body of the Corporation before issuing directions so that the Corporation is made aware of the government point of view and the necessity of too many directions is eliminated. "This

Damocles sword swings above the board table and need not fall to be effective".*

It is curious that on the one hand the Central Government was reluctant to issue directions under Section 48 and on the other the Corporation regarded the issue of directions as a reflection on its own incompetence and pleaded on occasion that directions should not be issued, while at the same time allowing itself to be influenced in a manner not contemplated by the Act.

(iv) The Central Government may remove from the Corporation the Chairman or a member in certain circumstances. (Section 51.)

(v) The Central Government has power to make rules on many matters. (Section 59.)

(vi) The Corporation is required to obtain the previous sanction of the Central Government to its regulations made for carrying out its functions. (Section 60.)

44 The Act gives no specific power to Government to call for information. We suggest that a formal provision to this effect should be made.

Financial Provisions (Sections 27 to 47)

45. The Financial provisions in the Act, a summary of which has been given elsewhere, are the outcome of an agreement reached between the three Participating Governments prior to the establishment of the Corporation. We do not, therefore, propose to go into them in any great detail as we do not wish to disturb the settlement based on agreement save for exceptional reasons.

46. There are, however, certain features of the financial provisions which must be noticed.

47. Section 30 of the Act lays down that the Participating Governments shall provide the entire capital required by the Corporation "for the completion of any project undertaken by it." It is true that theoretically the three Governments are under an obligation to finance any and every project that the Corporation might undertake, as there is no express restriction placed on the power of the Corporation in this regard. But in the first place, it is most unlikely that a responsible statutory body such as is constituted by the Act before us would undertake any project howsoever, unconnected with the scheme. Secondly, we would point out that in actual practice the Central Government has not only reduced the provision made in the Corporation's budget estimates, but on occasion reduced the sanctioned amounts in accordance with the exigencies of its own budgetary

*Page III. Problems of Nationalized Industry, edited by William A. Robson.

position. There is no reason to assume that the Corporation would undertake projects for which the Central Government would not be willing to provide funds. The Corporation would not normally raise loans under Section 31 to find capital for such projects. The provisions are being worked in the right spirit and the question regarding the scope and effect of sections 30 and 31 seems to us, therefore, more or less academic.

48. The scheme seems to be something like the following:—

The Corporation prepares its budget and submits it to the Central and Provincial Governments. The Participating Governments, in consultation with the Corporation, approve it with such modifications as they deem fit and then obtain a grant from their respective Legislatures. If afterwards a Participating Government defaults, the Corporation has the right to raise loans and debit them to the defaulting Government. In this view of the case, no amendment is necessary for this purpose. But when the amendment of the Act is undertaken, opportunity may be taken to clarify this point.

49. It is provided in the Act that, except as otherwise directed by the Central Government, all moneys of the Corporation shall be deposited in the Reserve Bank of India or the Agents of the Reserve Bank of India or invested in such securities as may be approved by the Central Government [Section 29(2)]. In the absence of appropriate directions of the Central Government, the Corporation is at present prohibited from maintaining accounts in any bank other than the Reserve Bank of India with the result that great inconvenience is caused for disbursing payments at places outside Calcutta. We recommend that the Central Government should authorise the Corporation to open accounts with any of the more important Indian Banks wherever necessary.

Audit and Accounts (Section 47)

50. We consider the existing provisions adequate.

Advisory Committees

51. Under Section 10 of the Act the Corporation may, subject to rules, "appoint one or more Advisory Committees for the purpose of securing the efficient discharge of the functions of the Corporation, and in particular, for the purpose of securing that these functions are exercised with due regard to the circumstances and requirements of particular local areas." Explaining the provisions of this section Shri Gadgil said in Parliament:

"Now this Advisory Committee will represent local interests. Local opinion will be ascertained and, if I may borrow

the formula from the Soviet economy, suggestions will come from below and directions from above. Every little part of the scheme, in so far as it affects any particular area, will be considered by the Advisory Committee and other Committees. You will find, Sir, in Clause 21 that it is proposed to have many such smaller organisations or sub-organisations, for planning, designing, construction operating agency and so on ***** You will find, Mr. Speaker, that it has been the background of this Bill that popular opinion should be ascertained and popular representatives should be associated to the greatest possible extent.* * * * * No Government, no scheme, can be successful unless both of them secure the heartiest co-operation from those whose lives are affected by the orders of the Government or the facilities made available from the scheme when they are completed. So far as securing of local co-operation is concerned, I have already said that a wider provision has been made in Clause 10.”*

52. At the outset the Central Government made no rules regarding the appointment of Advisory Committees and the Corporation on their part took no steps to appoint them. It is clear that this provision was not designed for the purpose of creating any new machinery for indirectly controlling the activities of the Corporation but for a very different purpose. It was mainly to enable the Corporation to set up regional committees whose advice may be of use to the Corporation in dealing with problems of particular areas within the limits of the Damodar Valley. But the present Advisory Committee which is more a Controlling Committee than an Advisory Committee, consisting of the Premier of West Bengal, a Minister from Bihar, high-ranking representatives of the Central Government like the Secretary to the W.M.P. Ministry, was set up as a result of many conflicting considerations which may be briefly noticed. It is not altogether incorrect to say, in Shri Gorwala's words, that “Soon, however, after the corporation came into existence, the autonomy of the corporation seems to have become the object of considerable dislike in some Governmental circles. It would almost seem as if they had not quite realised how much power had been conceded.” Some such feeling seems to have prevailed in the Works, Mines and Power Secretariat. The Participating Governments had begun to feel that they were not being kept in touch with what was going on and were not being supplied with such information as required and were therefore not averse to having a more direct say in the

*Constituent Assembly (Legislative) Debates, Vol. I, 1948, page 758.

affairs of the Corporation. Lastly, although they were opposed to the idea in the beginning, the Corporation finally acquiesced in the arrangement because they must have felt that, in view of the attitude of the W.M.P. Secretariat, they would be able on occasion to rely on the support of the Participating Provincial Governments in the Committee. Thus the Advisory Committee came to be supported by all concerned as a result of these conflicting feelings.

53. The idea was first mooted when in the Inter-Provincial meeting held on the 9th May, 1949, the Premier of West Bengal suggested the necessity of forming an Advisory Committee. He said that it was essential for the two Provincial Governments to be closely associated with the work of the Corporation without in any way interfering with its day-to-day work. It was agreed in principle that such a Committee should be set up and a Sub-Committee under the chairmanship of the Premier of West Bengal was appointed to draft its constitution and functions. It proposed that the Central Government themselves should form the Advisory Committee which should consist of three representatives of the Central Government (one of whom shall be representative of the Ministry of Finance) and two representatives each of the Governments of West Bengal and Bihar (one being preferably a Minister and the other a Secretary to the Provincial Government or a Technical Officer). The Secretary to the Corporation was to be the Secretary of the Advisory Committee and it was to elect its own Chairman. Representatives of the three Governments were to be permitted to bring with them their Government's technical advisers, if so desired. The functions of the Advisory Committee were:

- (i) to note the progress made by the Corporation from time to time and the manner in which each project was taken up, so that reports thereon might be sent to the respective Governments;
- (ii) to arrange discussions for facilitating mutual appreciation of the respective view-points of the Participating Governments and the Corporation in regard to the overall plan, the programme and the pace of development; and
- (iii) to communicate the suggestions of the respective Governments with regard to the issue of directives on matters of policy by the Centre under Section 48 of the Act.

The agenda for the meeting of the Advisory Committee was to be prepared by the Corporation but it was open to the three Participating Governments to suggest subjects for inclusion in the agenda. The Advisory Committee should preferably meet once a month for the first six months and at longer intervals thereafter. The proposals

of the Sub-Committee were approved by the Inter-Provincial Conference.

54. The Advisory Committee envisaged by the Inter-Provincial Conference was clearly not the Advisory Committee contemplated by Section 10 of the Act; the statutory Advisory Committee was to be appointed by the Corporation while this Committee was to be appointed by the Central Government. The functions of the Advisory Committee, proposed by the Conference in particular those set out in (i) and (iii) above, do not strictly fall within the scope of Section 10 of the Act. It was thus clearly to be a body set up by "agreement" between the Participating Governments and the Corporation outside the scope of the Act. Nevertheless, on the 23rd May, 1949, the Central Government made the "Damodar Valley Corporation" (Advisory Committee) Rules, 1949, under Section 59(6) of the Act substantially incorporating therein the recommendations of the Inter-Provincial Conference regarding the constitution, the organisation and the functions of the Advisory Committee. It was, however, realised that the Central Government was not competent to appoint such a committee and hence it was provided in the rules that the Corporation itself would appoint the Committee. In the first meeting of the Advisory Committee held on the 1st June, 1949, it was pointed out on behalf of the Corporation that the Advisory Committee contemplated by the Rules was different from the one agreed to in the Inter-Provincial Conference but it was eventually decided that the Corporation shall itself constitute the Advisory Committee under Section 10 of the Act and the Rules framed by the Central Government and at the same time implement substantially the recommendations of the Inter-Provincial Conference. Accordingly, on the 26th July, 1949, the Corporation passed a resolution constituting an Advisory Committee, the composition and functions of which were as recommended by the Inter-Provincial Conference. The Government of West Bengal nominated the Chief Minister to the Advisory Committee while the Bihar Government nominated its Irrigation Minister thereon.

55. It is clear from the foregoing that the Advisory Committee as at present constituted and the so-called Technical Sub-Committee consisting of the engineers of the Centre and the two States constituted to advise the Advisory Committee are not covered by the Act and are irregular, if not also illegal. This is not to say that they have not served any useful purpose. On the contrary, it must be admitted that the State Governments have been by and large of great help to the Corporation; they even went to the extent of opposing the issue of directions by the Central Government under Section 48, the only occasion on which the Centre proposed to issue a direction, forbidding the Corporation to make appointments to

posts carrying a salary exceeding Rs. 2,000 p.m. without the Central Government's prior approval. With all that, however, we are of opinion that these Committees, as constituted, being extra legal, their continued existence cannot be defended and they should be abolished. The Advisory Committee rules may be rescinded.

Functions of the Corporation

56. The construction of a multi-purpose project confers various benefits on the region affected such as irrigation, power, flood control, navigation etc., but following the model of the TVA, it is being increasingly recognised that the mere completion of engineering works and their maintenance and operation are not the be-all and end-all of the schemes. Development of the human and other resources of a valley is now-a-days considered to be at least as essential, if not actually more essential, than the mere construction of dams. In conformity with this trend of thought, the DVC Act includes among the functions of the Corporation besides the normal ones of flood control, power generation, irrigation and navigation, such beneficent activities as the "promotion of public health and the agricultural, industrial, economic and general well-being in the Damodar Valley * * * * " [Section 12 (f)]. The estimates and financial forecasts pertaining to what may be termed the normal functions usually provide for only the engineering structures and services which will earn revenue directly. We are of opinion that the normal functions of a corporation should include only such essential ancillary activities of a beneficent nature, as are obligatory on the project, such as those intended to mitigate the hardships caused to the people directly affected by the project, as resettlement of displaced people, keeping shore lines or reservoirs free from malarial larvae, etc. Thus, malaria control measures along the reservoir shores would be a legitimate charge on the project as malaria is the direct result of the creation of the reservoirs. Such measures all over the valley, however, would be outside the scope of the project and therefore, beyond the functions of the Corporation. Most of the functions of the Corporation listed in sub-section 12(f) of the Act form part and parcel of the social welfare activities of the States concerned and may equally well be handed over to State Governments. But there is an advantage in making the Corporation act in consultation with the Governments concerned responsible for them because such activities may have to be organised on a regional basis. While, therefore, we are of opinion that they need not necessarily be beyond the purview of the Corporation, each such scheme should be undertaken only after it has been specifically sanctioned by the Central Government; it should, however, be open to a State Government to entrust any such work to the Corporation for execution in order to take advantage of the special facilities

available to the Corporation in the area. For such works, the State Government would naturally provide the funds.

57. Soil conservation and afforestation as provided under subsection 12(e) of the Act are of special importance as they are intimately connected with silt regulation and to a certain extent with flood moderation. If appropriate measures are not taken in time, the new reservoirs will silt up quickly and become useless. We recommend that schemes under this head should be subject to the prior approval of the Central Government.

58. We have considered the method adopted for soil conservation work in the Tennessee Valley where the willing support of the farmers and co-operation of all State and Federal agencies is enlisted in this direction, the role of the TVA being one of a purely advisory character. On examining the scheme for soil conservation prepared by the Corporation for the upper valley, we find that the Corporation intends to carry out this work at its own expense and by its own agency. We doubt if work on these lines can be done efficiently and economically in this way. We are convinced that the TVA approach is the right one and it should be tried by the Corporation. It should, however, be adapted to Indian conditions. Here we suggest that afforestation and soil conservation in Government lands should be undertaken by Government and soil conservation in private land should be done by the farmers under expert guidance and with financial assistance provided by Government as indicated by the Planning Commission in Chapter XXII of the First Five Year Plan. The difficulty in such a method, however, would not be so much in the Corporation's preparing a plan with the help of its experts, as in getting it executed by the farmer with his willing co-operation. We are of the opinion that the Extension Service which is now contemplated for the whole of the country would be the best agency for this purpose. The role of the Corporation should be limited to that of planning and guiding the work and rendering such financial assistance as may be possible and for this purpose, we have suggested elsewhere the appointment by the Corporation of a social worker with some knowledge of economics.

Priorities to be fixed by Central Government

59. Although the Act does not prescribe priorities between the various functions, we are of opinion that the Central Government should lay down priorities with regard to each project, if necessary by means of a direction under Section 48.

Future set-up for large River Valley Schemes envisaged by Estimates Committee

60. We may now consider the Estimates Committee's proposals for the future administration of the River Valley projects. They have recommended a three tier organisation for the initiation, sanction and execution of multi-purpose river valley projects; according to their scheme, the sanctioning authority would be the Cabinet acting on the advice of the Ministry of Irrigation & Power, the Planning Commission and the Central Water & Power Commission; the initiator and planner would be the C.W. & P.C., but the final shape to the plans should be given by the Ministry and the Planning Commission in consultation with the C.W. & P.C., and a semi-autonomous statutory Corporation should be in charge of the execution of the scheme within the blue-print supplied to it by Government.

In para. 119 of their report, they recommend that—

“When any scheme is initiated by the Central Water and Power Commission and plans and estimates therefor are prepared, care should be taken that all technical details in connection with the scheme as well as estimates for each detailed item are worked out simultaneously. At present the tendency is to draw up schemes in barest outlines and to give very general estimate of cost under certain major heads. This is not satisfactory. The scheme must be completely thought out in all its major and minor details and estimates for all items of work prepared. These detailed plans and estimates would help the Government and the Planning and Executive authorities to ensure proper check over the execution of works and the costs.”

The Planning Commission insist and we agree that there should be thorough investigation and a complete picture of the economic and financial implications of a project before it is sanctioned.

While we feel that thorough investigation is necessary before a project is sanctioned to enable the preparation of more realistic estimates for schemes like Hirakud and Damodar, it will be realised that costs of projects even though investigated in considerable detail in normal times before sanction was accorded, like the Tungabhadra and the Lower Bhavani, have also gone up owing to the general increase in prices during the last decade, *vide* Appendix VII. In spite of our best efforts we have not been able to get the 1942 estimates for Bhakra-Nangal.

61. The Estimates Committee recommend that the functions of initiating and making plans should vest in the C.W. & P.C. This apparently means that the initiative in planning schemes will pass from the States to this organisation. Some State Governments have well-established Public Works Departments who are quite competent to draw up such plans. In such cases the role of the C.W. & P.C. should be merely advisory. This is the view taken by the Planning Commission. The difference in approach between the two may be noted. While the Estimates Committee makes over the initiation, investigation and planning of the project to the C.W. & P.C., the Planning Commission entrusts it to the State Government who may take such assistance as may be required from C.W. & P.C. Under the Estimates Committee's scheme, the C.W. & P.C. would be a very unwieldy organisation and it is doubtful whether the economy in planning and designing visualised by the Estimates Committee would be realised in actual practice. We are, therefore, inclined to agree with the Planning Commission.

62. When large projects are sanctioned, self-sufficient organisations for designing are necessary and dependence on outside organisations, however competent, is likely to delay the commencement and hamper the progress of works.

63. We understand that the C.W. & P.C. is being built up to render assistance as consultants for the big projects (*vide* para. 52, Chapter XXVI of the First Five Year Plan). This is good as far as it goes. But we suggest that the freedom of the Corporations to choose their own consultants should remain unhampered. Huge sums of money are involved and the Corporations must get the best advice wherever it is available. Moreover, too much centralisation in such matters is not desirable.

64. "The last and the third tier" say the Estimates Committee—

"should have responsibility limited to the execution of the work. Within its own sphere it must have complete freedom and authority to make decisions on the spot. It should not either assume the role of a planner or the policy-maker. It should work within the blue-print framed for it and ensure that the work proceeds efficiently and according to schedule. It should always be prepared and willing to give suggestions which, in the actual course of working, it deems necessary to bring to the notice of the policy-maker through the planner but at the same time ready to leave it to them to give such directions as they may like and then working within the original or revised directions as the case may be. * * *".

For this tier, "the Committee suggest the creation of semi-autonomous organisations (by statutes of Parliament) with well-defined functions and powers as envisaged above."

While we understand and appreciate the anxiety of the Estimates Committee to see that sanctioned plans are not arbitrarily changed in the course of execution, we should like to point out that by the very nature of the work involved in such complex projects many changes, not all minor, may be necessary during construction even after the best and most efficient pre-construction investigation and planning. Similarly deviations in estimates on account of rising prices, non-availability of materials etc. may occur which no one can prevent. We, therefore, suggest in this connection that only substantial deviations should be reported to Government. Needless to say major changes in design or in the scope of work should be avoided, as far as possible but if absolutely unavoidable, Government's prior sanction must be obtained. This can be achieved, if necessary, by the issue of directions under section 48 of the Act.

Land Acquisition

65. In the discharge of its functions under the Act, the Corporation has to acquire large tracts of land needed for submergence, for re-settling the displaced population and allied purposes. It is estimated that for completion of the First Phase alone, nearly 20,000 acres of land will have to be acquired.

66. Provision has been made in section 50 of the Act to enable the Corporation to acquire the land required. The procedure prescribed in the Land Acquisition Act, 1894, is applied to acquisition of land by the Corporation which is treated as a Company for the purpose of the Act. The land required by the Corporation shall be deemed to be needed for a public purpose.

67. It is true that the procedure prescribed by the Land Acquisition Act is elaborate and time-consuming but there does not seem to be sufficient reason for departing from the ordinary law of the land in the case of acquisition of land by the Corporation. Shorter and speedier procedure has indeed been devised to meet a national emergency, e.g., by the Resettlement of Displaced Persons (Land Acquisition) Act, 1948, which provided for resettlement and rehabilitation of persons displaced consequent on the partition of the country but land acquisition for the activities of the Corporation is not comparable with such a situation. The Minister observed in the course of the debate on the DVC Bill that:

"* * * * if it was possible to get the land immediately it could have been done, but in that case, we would have

got the land and lost the co-operation of the people. That is not the intention. That cannot be the intention. Therefore, the normal law of the land, namely the Land Acquisition Act, will apply."

However, appropriate modifications may be, and on occasion, have been made in the Land Acquisition Act to suit the special requirements of the situation, *e.g.*, in applying the Land Acquisition Act to Port Trusts, Improvement Trusts, etc.

68. The provision that the Corporation shall be treated as a Company for the purposes of the Land Acquisition Act, is in our opinion, unsatisfactory. It brings into operation Part VII of the Act which provides for an inquiry under Section 40 and execution of an agreement under Section 41 *ibid*. The special provisions of Part VII are enacted specially for Companies as the funds and the activities of Companies are not under the control of Government. But as the Corporation is a semi-Government organisation, it is hardly necessary to take precautions which may be legitimate in dealing with a Company. The better course would be to treat the Corporation as a 'local authority' on a par with Municipalities, Improvement Trusts, Port Trusts, etc. and provide that the land acquired by the State Government for the Corporation shall vest in the Corporation on payment by it of all expenses of acquisition.

69. Under the Land Acquisition Act the authority for which land is acquired has no right to make a reference to the Court challenging the quantum of compensation awarded to the owner of the acquired land. We recommend that as large sums of public money are involved, it should be considered whether the Corporation should not have the right to question in suitable cases the correctness of the collector's award by a reference to the court under Section 18 of the Act.

70. We also consider that the Corporation may employ, for the purpose of acquiring waste land, the law prevailing in the two States regarding acquisition of waste lands.

71. We recommend amendment of the DVC Act and of the Land Acquisition Act in its application to the Corporation on the lines indicated above. A draft of the amendments proposed will be found in Appendix VIII.

CHAPTER IX

THE ORGANISATIONAL SET-UP OF THE DAMODAR VALLEY CORPORATION

Introductory

The D.V.C. Act has conferred upon the Corporation a high degree of autonomy in the matter of its organisation. The Government of India have reserved to themselves the power to appoint only the Financial Adviser and the Secretary, but otherwise the Corporation enjoys full liberty to organise itself with a view to ensuring freedom of action and flexibility in administration. The Act has defined the functions of the Corporation and conferred upon it the general power "to do anything which may be necessary or expedient for the purpose of carrying out its functions under the Act."

Organisational History

2. When the Corporation came into existence in July, 1948, it obtained some officers from the Central Technical Power Board who formed the nucleus of the Planning and Designs Department of the Corporation. The Corporation, however, had to start almost from scratch in organising the other parts of the gigantic machinery needed to plan and execute the vast and complicated programme before it. By far the greatest need of the Corporation was of a team of engineers headed by a capable Chief Engineer; the key to the success of the Corporation was to remain largely in the hands of the engineering set-up of the Corporation. The efforts to obtain the Chief Engineer have already been dealt with.

3. The Corporation appointed one Mr. A. de Vajda, an irrigation engineer, soil conservation expert, in March 1949. We may recall that the Corporation had by this time appointed Mr. Fergusson as engineer in charge of construction; since March 1948 they had an engineer at the head of the Barrage and Irrigation Department.

4. In June, 1949, in the absence of a Chief Engineer and with a view to utilising the combined experience of the heads of different engineering sections and to co-ordinate their activities, a Board of Engineers, consisting of heads of all engineering departments, was formed under the chairmanship of Mr. A. de Vajda. In May, 1950, a Board of Consultants, composed of Mr. L. F. Harza, President, Harza Engineering Company, Chicago, U.S.A., Mr. S. O. Harper, ex-Chief Engineer of the Bureau of Reclamation and Shri A. R. Venkatachari, Chief Engineer to the Government of Madras, was

appointed to advise the Corporation on specific engineering problems referred to them from time to time. Another Consultant Shri Kanwar Sain was appointed subsequently. In December, 1950, Mr. A. M. Komora, the present Chief Engineer, joined the Corporation.

5. Meanwhile the construction of Tilaiya dam started departmentally in September, 1949, under the supervision of Mr. Fergusson. Messrs. Hind Constructions Ltd. and Patel Engineering Co. Ltd., were awarded the contract in March, 1950, to construct the Konar Dam; a Swiss firm, Gruner Bros. was appointed Consulting Engineers for the Konar Project in February, 1950. Erection of the Bokaro Thermal Power Station was entrusted to an American firm, Messrs. Kuljian Corporation, the supply of the required plant and equipment being made by the International General Electric Co., U.S.A.

6. Land acquisition, reclamation of land and rehabilitation of displaced persons were placed under a Director of Rehabilitation and Development.

7. In September, 1949, a Soil Conservation and Land Utilisation Department was created and Mr. A. de Vajda, was appointed head of the Department. The Department was combined with the Rehabilitation Department on Mr. A. de Vajda's departure in January, 1952.

8. The Chief Electric Engineer is in charge of the operation of various hydro-electric power houses, the Bokaro Thermal Power Station and the entire transmission system.

9. In administrative matters, the Corporation is assisted, besides the Financial Adviser and the Secretary, by the Director of Personnel, the Controller of Purchase and Stores, the Chief Accounts Officer, the Chief Information Officer and the Chief Medical Officer.

10. The chart of the present organisation set-up of the Corporation may be seen in Appendix IX.

Administrative set-up

11. Regarding the Corporation's methods of administration, we feel that there is too much centralisation. If the public Corporation is an example of decentralised administration, the principle of decentralisation should be applied to its internal management as well. While the Corporation should concern itself with policy matters and broad features of general administration and execution, and co-ordination, there should be delegation of powers at all levels. Likewise, in technical matters, the technical head should have wide powers—subject of course to overall supervision by the Corporation. There should be well-defined responsibility at all levels and adequate

Powers to discharge them efficiently and speedily. At present, the Secretary to the Corporation, who is described by the statute as "the chief executive officer" has power to sanction non-recurring contingent expenditure upto Rs. 200 only in each case. The Corporation has thus to deal personally with all non-recurring expenditure over Rs. 200. Reimbursement of medical expenses exceeding Rs. 100 is a matter for the consideration of the Corporation itself. The Chief Engineer can sanction original works upto Rs. 2,000 only, can purchase for sanctioned work stores upto Rs. 2,000 only and tools and plants upto Rs. 5,000 only, replace or renew parts of machinery upto Rs. 1,500 only. At one time, the head of a department could not transfer within the same department officers with a basic pay exceeding Rs. 500 p.m., but the orders were modified a year later. The Corporation, as far as possible, should avoid short-circuiting the chief executive or the departmental heads, as this will breed divided loyalties. Whenever more than one department is concerned, co-ordination should be made mostly automatic, the points at which each department should consult other departments being specified by rule. We have also noticed that the Corporation has adopted the same orthodox system of lengthy noting and counter-noting on the files to arrive at decisions like any Government department. This should be discouraged.

Engineering set-up

12. In the earlier stages of the Corporation, *ad hoc* arrangements were made from time to time for the discharge of the Chief Engineer's duties till the Chief Engineer joined. The Chief Engineer is now in charge of the construction of all the dams, power-houses and the irrigation barrage and canals. The Chief Electrical Engineer is in charge of the operation of all the hydro-electric stations, of the Bokaro Thermal Station and of the transmission system. The engineering section of the soil conservation department and rehabilitation departments are under the Director of Rehabilitation and Development.

13. A suggestion has been made that to ensure co-ordination, the Chief Engineer should be placed in overall control of all the departments of engineering—civil, mechanical, electrical and soil conservation, etc. In our opinion the present arrangement is working satisfactorily and the heads of the various departments remain in close touch with one another. There is nothing unusual in this system, since in most States in India the Electricity Department is independent of the Public Works Department. Soil Conservation is best left to the experts in that field.

14. The Estimates Committee have remarked in paras. 43 and 54 of their report that conflicting advice is given by the various technical advisers to the Corporation and that there is no co-ordination nor

overall control of the various schemes. We are of the opinion that all these have since been ensured with the appointment of the Chief Engineer.

15. We note that the Engineer-in-Charge, Barrage and Irrigation, draws a salary of Rs. 2,500 p.m. and is of the status of a State Chief Engineer. We would recommend that the Corporation might consider whether this post is absolutely essential, as this officer controls only two circles, which could be placed directly under the Chief Engineer. As work on the irrigation part of the project is, however, of great importance, we should like to leave the matter to the judgment of the Corporation.

16. We suggest that in projects of this magnitude it should be considered whether well-qualified quantity surveyors should not be employed with the requisite staff. Their main functions will be to advise on costs and contracts.

17. We notice that the Konar Project which is being done on contract and for the supervision of which the Consulting Engineers, Messrs. Gruner Bros., are responsible, has one Superintending Engineer assisted by one Executive and 16 Assistant Engineers on behalf of the Corporation, whereas the Maithon dam which is being done departmentally, has two Superintending Engineers, 6 Executive Engineers and 28 Assistant Engineers. It would appear that the staff posted on Konar is excessive in view of the work involved. The Corporation should see that no project is overstaffed and that no unnecessary posts are created.

18. The Corporation at present has a fair-sized design office.

19. In para. 40 of their report, the Estimates Committee remark with reference to the Maithon and Panchet Hill projects that "large establishments and consulting firms are eating away a good deal of finances without even the foundation stone being laid." We should like to point out that detailed designs have to be prepared before construction starts and it is natural that in the designing stage of Maithon and Panchet Hill, money had to be spent on the design establishment and consulting engineers, construction work being restricted to preliminary works. The Maithon Project is now in full swing and work on Panchet Hill has started.

20. In the same para., the Estimates Committee further remark "at no stage the whole project was subjected to the scrutiny of the Board of Consultants and that only queries about certain moot or doubtful points were put and answers secured. This appears to be a curious procedure and the Consultants cannot be expected to give general and wholesome advice." It may be recalled that the overall

plan prepared by Mr. Voorduin was approved by the Governments of India, Bengal and Bihar and scrutinised by the American Technical Mission. In their first report, the Board of Consultants have stated that they were satisfied with the considerations for proceeding with the dams in the first phase and that further studies would be required to determine whether the other four reservoirs would be necessary. The general plans of the Maithon and Panchet Hill and Konar dams and the Barrage have been reviewed by the Board of Consultants at their subsequent meetings. In the circumstances, it was not necessary to submit the entire plan to the Board of Consultants for advice. We are, however, satisfied that all the major questions of design have been submitted to the Board of Consultants.

21. In para. 113 of their report, the Estimates Committee have recommended "that the practice of appointing too many consultants and advisers should be avoided" and that future project authorities would have to function within the plans approved by the Government and it would not be necessary to take further advice on approved plans. Although the argument of the Estimates Committee is not without force, we should like to point out that many problems arise during actual execution which may require the best advice possible, whether Indian or foreign. We, therefore, recommend that such matters should be left to the discretion of the Corporation.

22. We are in complete agreement with the Estimates Committee that a schedule of rates should be maintained (para. 115), cost accounting organisations established (para. 118) and that conventional methods should be used as far as possible (para. 122). We also endorse their recommendations about contracts made in para. 115 of their report.

Foreign personnel

23. We have also considered the question whether foreign personnel and foreign firms should be employed by the Corporation. It is gratifying to note that the Corporation has been encouraging local talent. Apart from eight officers of the Kuljian Corporation who have had to be employed in special circumstances, two American engineers serving on the Board of Consultants which meets occasionally and the American Chief Engineer, the Corporation has on its staff only three foreigners. The question of employing foreigners was considered at the sixth Meeting of the Advisory Committee and the State Governments were of the opinion that "irrespective of high fees or abnormal salary of foreign specialist technicians, they should be appointed wherever such appointment is considered necessary in the interest of speedier or better performance of the work." We endorse this opinion. We also agree with the Estimates Committee's recommendation in para. 112 of their report that non-Indians should

be appointed for the minimum period necessary. The Estimates Committee further recommend that an Indian should invariably be put in as an under-study to the foreign engineer to take over from him in due course. In our opinion this should be done not invariably but wherever practicable.

24. The Estimates Committee are of the view that the appointment of non-Indians should be made only after full facts justifying such appointments have been brought to the notice of the Central Government and their approval obtained. We consider that such a procedure, apart from being time-consuming, is hardly called for and it is a matter to be left to the discretion of the Corporation. It would be sufficient if the Central Government is kept informed of the proposals for appointment of foreigners.

Soil Conservation Department

25. We consider that the present arrangement is unsatisfactory by which the Director of Rehabilitation and Development is in additional charge of the Soil Conservation Department. Soil Conservation is a highly technical subject and the programme contemplates afforestation, land use planning, land utilization and management etc. The department can be adequately handled only by qualified experts and we suggest that the Soil Conservation Department should be placed under a first rate specialist.

26. The development of the valley is one of the primary functions of the Corporation and includes multifarious activities. We have recommended in para. 56 of Chapter VIII that the Corporation should embark on development schemes falling under Section 12(f) of the Act only with the prior approval of the Government of India. In our opinion, a high-ranking social worker with sound knowledge of economics who commands the confidence of the local population should assist in the development of the valley. In the matter of development the advice and assistance of Advisory Committees composed of local leaders should be sought and the co-operation of the State Governments, Extension Service and local authorities ensured.

Electrical Department

27. The Chief Electrical Engineer, who has his office at Calcutta, is assisted by a Deputy Chief Electrical Engineer, stationed at Asansol, and four Superintending Engineers. We are of the view that the Chief Electrical Engineer's headquarters could be more conveniently located within the valley. There does not seem to be sufficient justification for a Deputy Chief Electrical Engineer particularly because the Chief Electrical Engineer has a Personal Assistant of the rank of Superintending Engineer. The completion of Bokaro

Thermal Power Station will also give considerable relief to the Chief Electrical Engineer.

Legal Division

28. The Organisation Chart for the D.V.C. prepared by Mr. Voorduin in 1947, provided for a Legal Adviser as well as a legal department. The latter was to include one solicitor and two assistant solicitors. Yet, oddly enough, there is even now no legal division in the Corporation. On January 13, 1951, a specific proposal to this effect was made, but it was rejected on the ground that the Law Ministry of the Central Government can be consulted whenever necessary.

The amount of legal advice and guidance which the Corporation now receives is far from adequate. A firm of solicitors is no doubt consulted *ad hoc*, and the presence of a lawyer member on the Board cannot meet the Corporation's requirements more than partially. A public corporation like the D.V.C. must have qualified legal advice constantly available to it as numerous questions in connection with contracts, purchases, service conditions continually arise. To economise here would be unwise. Many of the mistakes committed in Konar contract rates might have been avoided if competent legal advice had been available on the spot. The absence of a law division in the Corporation office is a serious omission and should be supplied without delay.

Personnel Policy

29. To regulate the recruitment, promotion and conditions of service of its employees, the Corporation has framed, in exercise of its powers under the Act, the Damodar Valley Corporation (Service) Regulations. Recruitment to posts carrying a pay of Rs. 60 per month and more is made on the recommendation of a selection board consisting of at least one member of the Corporation, the Director of Personnel and the head of the department concerned or his representative. Provision is also made for obtaining the services of experts to serve on the selection board in respect of any particular appointment. The selection is made either on the result of an examination or interviews or by both. The procedure conforms to the one recommended by the Estimates Committee in para. 110 of their report.

30. We are of the opinion that the procedure prescribed for recruitment and promotions of the Corporation's employees is generally satisfactory and we do not consider any change necessary.

31. We agree with the Estimates Committee's remarks in para. 110 that all appointments above a certain monetary limit should be made

by the Corporation and suggest that all the three members of the Corporation should sit on the selection board when appointments carrying pay of Rs. 1,000 p.m. and above are under consideration. The number of such appointments is less than 30.

32. The Estimates Committee have in the same paragraph of their report suggested that key appointments to be specified by the Government of India should be made by the Corporation only with the approval of the Government of India. In our opinion such a procedure is unnecessary and would create impediments and delays.

33. We recommend a system of 'merit awards' based on objective tests as an incentive to good work. Bonuses and prizes may be provided for extraordinary merit displayed on any particular occasion.

34. We agree with the other recommendations of the Estimates Committee regarding the creation of the Central Service of Irrigation Engineers (Para. 129), the registration of technical personnel (Para. 125) and the training of engineering apprentices (Para. 130), and consider that these will be helpful in building up large scale engineering organisations for the execution of river valley projects. In the projects which we have visited, a number of technicians have been trained, and specialised experience is accumulating and it is very important to see that it is not dissipated after the completion of particular projects.

Headquarters of the Corporation

35. The question of headquarters was raised as early as 1946 by Shri B. K. Gokhale, the first Administrator, Damodar Valley Project. In a report dated June 12, 1946, Shri Gokhale said:

"Concerning the Headquarters of the Damodar Valley Authority, Dhanbad would probably be the most central place from which all the 8 dams will be readily accessible. There is, however, no accommodation available at Dhanbad. Housing accommodation of a sort is available at Hazaribagh which is within 30 miles of Tilaiya. The headquarters of the Damodar Project may suitably be located at Hazaribagh to begin with. The permanent headquarters may subsequently be shifted to Dhanbad unless Hazaribagh is preferred in view of its climatic advantages."

36. The Government of Bihar was naturally anxious that the headquarters of the Corporation should be located somewhere in Bihar. A non-official resolution was unanimously passed by the Bihar Legislative Assembly on the 1st of April, 1948, urging upon the Government of India to locate the Head Office of the Damodar Valley Corporation in Bihar. The question came up for consideration soon

after the Corporation was set up. During the two years preceding the establishment of the Corporation it had been more or less taken for granted that the headquarters would be located in Bihar. In December, 1946, the office of the Secretary to the Damodar Valley Project was set up at Hazaribagh. In the early stages the choice seemed to lie between Hazaribagh and Ranchi. As between these two places, Ranchi appeared to be preferable because of its greater accessibility, better communications including railway, better climate



38. There can be no doubt that the public interest will be best served by locating the headquarters at some suitable place within the valley itself. Calcutta of course is not without its advantages, particularly in the early stages: accessibility; ease of communication by road, rail and steam—this is important when lakhs of rupees' worth of material was being imported; advantages connected with the headquarters of a Participating Government; existence of facilities of various kinds for the staff and their families, educational, medical, etc. But now as nearly five years have elapsed since the establishment of the Corporation, other considerations also come into play. On the whole, therefore, we agree with the Estimates Committee that the headquarters should shift to a central place in the valley as early as circumstances permit. We consider Maithon the most suitable. Not the least of the advantages of locating the headquarters at Maithon is its situation on the border of Bengal and Bihar.

39. The headquarters of the Chief Engineer and the Design Office have since moved to Maithon.

40. Even if the headquarters are shifted to Maithon an office will have to be maintained in Calcutta. Members as well as officers of the Corporation will certainly need to visit Calcutta frequently for contacts with the State Government, commercial firms and others. Besides, activities like purchase and information could be best carried out from Calcutta. For this purpose, however, a relatively small office should prove sufficient.

For the operation of the irrigation system, including the navigation canal, a branch office at Burdwan will most probably prove necessary. Malaria control activities in the lower valley could also be best carried out from a centre like Burdwan.

For erosion control and forestry a branch office at Hazaribagh will be useful. There are enough DVC buildings there which could be utilised for the purpose.

Work at all these branch offices as well as the operation of the dams and power stations could be most conveniently co-ordinated from the headquarters at Maithon which lies midway between Burdwan and Hazaribagh.

General

41. An abstract of the present strength of the various departments of the Corporation and an abstract of the classification of staff may be seen at Appendix X. It has not been possible for the Committee within the short time at their disposal to make a thorough study of the organisational problem and the nature and volume of work.

assigned to each office and section attached to the Corporation as well as to each individual employee and, therefore, we do not propose to offer any opinion on the adequacy or otherwise of the staff maintained by the Corporation. All proposals for extra staff are scrutinised first by the head of the department concerned and then by the Director of Personnel and the Financial Adviser before they are sanctioned by the Corporation. The justification to continue the staff appointed is examined periodically and surplus staff, if any is retrenched. However, we recommend that the Corporation should engage the services of a reputed firm of efficiency experts to go into the question of the staff and their efficiency. This should ensure economy.



CHAPTER X

CONCLUSION AND ACKNOWLEDGMENTS

We have concluded our labours, and Government may expect us to give an overall appraisal of the work of the Corporation. But as our terms of reference do not cover the entire field of the Corporation's activities, we are unable to give such an appreciation.

2. The Damodar Project was conceived in the shadow of World War II at a time when famine and flood devastated Bengal and the country as a whole suffered from shortages of all kinds. The nation was impressed by the urgent necessity of reproducing the TVA in India with the resultant benefits of irrigation, flood control and electricity. Many high-ranking engineers laboured hard on the eve of Independence on the Damodar Scheme. The country gave it top priority after Independence and it was taken up with enthusiasm and earnestness.

3. But there were many difficulties in the way which we were inclined to ignore. We did not have adequate experience in this particular line, we had not enough engineers and technicians of the highest calibre, prices were rising, machinery and equipment were scarce and difficult to obtain. The Corporation started almost from scratch and during the five years of its existence had to face many problems. They had to organise operations and gather staff from wherever they could get. In these circumstances there was risk of mistakes resulting in financial losses. It is true that many mistakes have been made and losses, heavy losses, have been incurred. But looking at it from the broader viewpoint, the country has gained valuable experience and has learnt many valuable lessons. Many engineers and technicians have been trained. A new form of administration for national undertakings is being hammered into shape. The Tilaiya Dam is complete and Konar is nearing completion. The Bokaro Thermal Power Station, said to be the largest in Asia with an ultimate capacity of 2,00,000 KW and an immediate capacity of 1,50,000 KW has gone into operation. The Maithon and Panchet Hill dams are making satisfactory progress. The Durgapur Barrage and the canals are in hand. Undoubtedly something mighty and significant is being accomplished and future generations will be grateful that such a scheme has been taken up. There is no cause for pessimism.

Acknowledgments

4. Throughout our enquiry we received the greatest possible assistance and co-operation from the Chairman, Members and officers of the Corporation. We wish to place on record our indebtedness to them. In particular, we are specially grateful to Dr. Sudhir Sen, Secretary, who was ever ready to meet our ceaseless demands for information and who also found time to give us the benefit of his personal views on many a problem based on his unrivalled knowledge of the affairs of the Corporation. We have received every courtesy and consideration from the authorities of the various river valley and other projects we have visited during the course of our investigations and we wish to thank them. Finally, we wish to record our keen appreciation of the services of Shri B. D. Nanda, Member-Secretary, and Shri K. V. Rama Rao, Assistant Executive Engineer with the Committee, for the long hours of arduous work they put in very trying conditions. The Assistant Secretary and the members of the staff have worked throughout cheerfully and well and but for their willing assistance this report could not have been completed within the allotted time.

(Sd.) P. S. RAU, *Chairman.*

(Sd.) V. D. DANTYAGI, *Member.*

(Sd.) G. R. GARG, *Member.*

(Sd.) B. N. LOKUR, *Member.*

(Sd.) B. D. NANDA, *Member-Secretary.*

RAVERSWOOD, SIMLA;
The 3rd June, 1953.

CHAPTER XI

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Chapter III.—Land Reclamation and Rehabilitation works undertaken by the DVC.

1. The Corporation was bound to follow and has been following the considered policy of Government referred to in the repeated assurances given by Government in the Legislature. (Para. 7).

2. The work of rehabilitation should remain with the Corporation. (Para. 10).

3. Payment of compensation in cash in all cases is neither fair in itself nor in consonance with the declared policy of Government and must be rejected. (Para. 11).

4. The proposal that land for land may be given 60 to 100 miles away where it can be reclaimed at lower cost is bound to lead to justified agitation by displaced persons and cause difficulties and will involve change in policy which will lead to charges of breach of faith. (Para. 12).

5. Land of equal productivity must be given to the displaced persons; any other course would be unfair. (Para. 13).

6. The amenities provided in the resettlement colonies appear to be the very minimum that ought to be provided. (Para. 12).

7. The proposal that the Corporation should acquire culturable waste and hand over to displaced persons an equivalent number of acres and give suitable plots for houses in a new *abadi*, though cheaper, would not provide real rehabilitation. (Para. 14).

8. The method may be tried of entrusting the construction of houses to an approved village co-operative society under the guidance of the Corporation's engineers. (Para. 14).

9. The work done on the houses in the resettlement colonies is not fully commensurate with the money spent. (Para. 15).

10. The nature of land makes reclamation not only difficult but expensive. (Para. 16).

11. The cost of reclaimed *dhan* land including post-reclamation treatment will be about Rs. 875 per acre. (Para. 19).

12. The cost of reclamation can be reduced :

(a) by ensuring economical use of machinery by

(i) cutting down the idle time of the machinery to the irreducible minimum, and

(ii) handing over to the Chief Engineer all unsuitable and superfluous machines together with the staff operating them to be utilised elsewhere, and

(b) by curtailing overhead charges and making them commensurate with the volume of work. (Para. 23).

13. The present Director of Rehabilitation had to be paid a salary of Rs. 3,000 p.m. and it would be false economy at this stage to employ a cheaper agency though, later on, when the work tapers off, the Corporation may make such other arrangements as may be justified by the circumstances. (Para. 24).

14. Barring such minor economies as the Director may effect from time to time, there is no room for any large scale saving in the Land Acquisition branch. (Para. 25).

15. There is some room for economy in the Rehabilitation and Development branch. The post of an Administrative Officer for this branch is unnecessary and should be abolished. (Para. 26).

16. The Headwaters Engineering Circle should be transferred to the Chief Engineer. As a result of this transfer, it should be possible to reduce the post of Superintending Engineer, in charge of this work to that of Executive Engineer. (Para. 27).

17. The Accounts Office staff could be reduced somewhat. The proportion of officers here is high. (Para. 27).

18. It is difficult to say that salaries of the staff of the Rehabilitation and Development Department are not commensurate with the work performed. (Para. 28).

19. The practice of sanctioning posts which are not immediately required should cease. (Para. 29).

20. Posts not filled on 1st November, 1952, should require fresh financial sanction. (Para. 29).

Chapter IV.—The changes in the design and construction features of Tilaiya Dam

21. Though the advice of the Board of Consultants for a change of design from masonry to concrete was not unanimous, no formal decision was taken by the Corporation, but Shri Venkatachari's

advice was tacitly accepted. It is surprising that no record exists of so important a decision with such technical and financial implications. (Para. 14)

22. The numerous changes in design were due to the absence of a chief engineer, who could have given the Corporation authoritative advice. (Para. 15)

23. The possibility of linking Tilaiya power station with Bokaro may be investigated. As soon as that is done, the thermal power plant at Tilaiya may either be disposed of or used elsewhere. (Para. 16)

24. It may be considered whether the waters of both Tilaiya and Konar cannot be put to immediate use. (Para. 17)

[~~Paras. 25-41 omitted.~~]

Chapter VI.—The Planning and Purchase of Stores and Equipment

42. In the absence of competent technical advice and a proper appreciation of the magnitude of the problem, it does not appear that the Corporation paid sufficient attention to planning of equipment in the early stages; however overall planning was made impossible owing to the numerous changes in design and programme. (Para. 4)

43. Though the Corporation took the Bermo seam of the Kargali colliery on sub-lease in October, 1950, mining operations have not yet started. It cannot be said that this part of the programme was well-planned. (Para. 5)

44. The equipment for Maithon and Panchet Hill has been well-planned. (Para. 6)

45. The purchase procedure of the Corporation, more or less similar to that in vogue in the D.G., S. & D., has been evolved slowly during the course of the last four years. (Para. 10).

46. The Corporation have, on the whole, tried to follow the agreement made with D.G., S. & D. in May, 1950, regarding the utilisation of that organisation. (Para. 12)

47. The Corporation purchased only about 9 per cent. of its requirements through the D.G., S & D. (Para. 13)

48. The Corporation had to make purchases by negotiation till the register of approved firms was prepared and it cannot therefore be said that, during this period, purchases were made after much competition. (Para. 14)

49. It would not be proper to compel the Corporation to make all its purchases through the D.G., S. & D. At the same time, it should
70 M. of I.&P.

be advantageous to the Corporation to enforce more strictly the procedure laid down to ensure that requirements are foreseen by indenting officers as far as possible. If this is done, it should be possible for the Corporation to utilise the agency of the D.G., S. & D., to a greater extent. (Para. 18)

50. The possibility of entering into rate contracts with regard to spare parts of the machinery in common use may be explored by Government. (Para. 19)

51. The possibility of standardising equipment to be used in the river valley projects needs consideration by Government. (Para. 20)

52. Apart from the special contract with Kuljians, there is no other firm of consultants of the Corporation the services of which have been utilised as contractors for the execution of work or for the supply of stores or used as an agency for inspection of stores. (Para. 23)

53. In the case of Kuljians it is true that their services have been so utilised but having regard to all the circumstances we are not inclined to take too serious a view of this departure from principle. (Para. 30)

54. The payment of 2½ per cent. commission to Kuljians for purchases made in America does not seem to have involved any extra expenditure. (Para. 30)

Chapter VII.—The appointment of a Chief Engineer

55. It is not a fact that till recently the Corporation did not think it necessary that there should be a chief engineer in overall control of the project as a whole. The search for a chief engineer was commenced even before the Corporation came into existence and was continued by it after it came into existence. (Para. 48)

56. It is incorrect to say, as the Estimates Committee say, that the Corporation dispensed with the services of a Chief Engineer approved by Government before the formation of the Corporation. (Para. 48)

57. In the first period efforts to secure an American Chief Engineer failed because of the vacillation and indecision and bargaining spirit displayed by the Corporation. (Para. 14)

A first rate chief engineer could have been appointed around April, 1949, had the Corporation been prepared to pay the same terms on which Mr. Komora was ultimately appointed. (Para. 14)

58. Though from the beginning it appears to have been taken for granted that an American Chief Engineer would have to be appointed, the Ministry of W.M.P., without consulting the Corporation,

advised the Finance Ministry that an American Chief Engineer was not indispensable. (Para. 22)

59. The Chairman of the Corporation did not, during his three months' stay in America, secure a chief engineer, though public opinion was hardening against the Corporation on account of the absence of a chief engineer. (Paras. 30 and 31)

60. The efforts made by the Corporation to secure the services of an Indian Chief Engineer were genuine and serious. (Para. 48)

61. The W.M.P. Ministry were kept informed from time to time of developments in the Corporation's search for a chief engineer, culminating in the appointment of Mr. Komora. (Para. 48)

62. [Omitted.]

63. The results of the absence of a Chief Engineer for two and a half years are writ large on the work of the Corporation—inexpert advice and frequent changes of design, increase in costs, waste of public funds. (Para. 50)

64. For the vacillation and indecision in appointing the Chief Engineer the Corporation is as a whole technically responsible but the personal responsibility of the Chairman in the matter is by no means negligible. (Para. 50)

Chapter VIII.—The Adequacy of the Damodar Valley Corporation Act, 1948

65. The semi-autonomous corporation is the best method yet devised of executing multi-purpose projects efficiently and economically. (Para. 14)

66. It would not be prudent to constitute semi-autonomous corporations in the case of non-commercial activities without proper safeguards as indicated in para. 23. (Para. 19)

67. (1) A Corporation should be created only when a project has been investigated in sufficient detail, and a fairly firm estimate has been sanctioned by Government.

(2) Within the sanctioned project estimate, the Corporation should have full power to execute the project, without any outside interference. The Corporation should not have any power to modify the scope of the project. That power should vest only in Government.

(3) If the project estimate is likely to be substantially exceeded, the Corporation must obtain Government's sanction.

(4) After completion of the project, the Corporation should have full power to run its commercial or quasi-commercial activities, like irrigation, navigation, power and flood control.

(5) In regard to non-commercial activities like soil conservation, afforestation, etc., schemes should be submitted by the Corporation to Government for approval, before they are taken up. Such schemes should be implemented only to the extent approved by Government.

(6) The budget estimates of the Corporation should be subject to the approval of Government.

(7) Power should be taken by Government to give directions "as to the exercise by the Corporation of its functions" somewhat on the lines of the Air Corporations Act, 1953.

(8) The powers reserved for Government under these proposals should vest in the Central Government, as it would obviously be impossible for a Corporation to consult different Governments, which might give differing decisions. In other respects the scheme of the DVC Act may be followed. (Para. 23)

68. Full Parliamentary control over statutory corporations in charge of river valley schemes would have the effect of placing them in a position worse than that of Government departments. (Para. 24)

69. It seems to us inappropriate to lay down by statute that one member shall be an administrator, another an engineer and a third a financial expert. (Para. 35)

70. Although no qualifications for membership of the Corporation are to be prescribed in the statute yet in the selection of the personnel of the corporation "the functional element" may appropriately be given more attention in view of the nature of the tasks a corporation is likely to be called upon to perform, (Para. 37)

71. A "policy-making corporation" is in every way better than a "functional" one. (Para. 40)

72. The convention, that whenever there is difference of opinion between the Financial Adviser and the Corporation, he should report the matter for decision to the Government of India in the Ministry of Finance, should be abrogated. (Para. 41)

73. The present procedure about the appointment of the Secretary is suitable. (Para. 41)

74. The Act gives no specific power to Government to call for information. We suggest that a formal provision to this effect should be made. (Para. 44)

75. The provisions of sections 30 and 31 are being worked in the right spirit, but their full implications may be clarified when the amendment of the Act is undertaken. (Paras. 47 and 48)

76. The Central Government should authorise the Corporation under section 29(2) of the Act to open accounts with any of the more important Indian Banks wherever necessary. (Para. 49)

77. The existing provisions relating to audit and accounts are adequate. (Para. 50).

78. Though the Advisory Committee and the Technical Sub-Committee may have served some useful purpose, they are extra legal and probably also illegal and hence their continued existence cannot be defended and they should be abolished. The Advisory Committee Rules may also be rescinded. (Para. 55)

79. Functions listed in sub-section 12(f) of the Act should be undertaken only after the scheme has been specifically sanctioned by the Central Government unless the State Government concerned desire to entrust any similar work to the Corporation after making provision in the State budget. (Para. 56)

80. Afforestation and soil conservation as provided under section 12(e) of the Act should be subject to the prior approval of the Central Government. (Para. 57)

81. Government should lay down priorities between the various functions with regard to each project, if necessary by directions under section 48. (Para. 59)

82. The Planning Commission insist and we agree that there should be thorough investigation and a complete picture of the economic and financial implications of a project before it is sanctioned. (Para. 60)

83. The procedure for initiating and making plans laid down by the Planning Commission in the Five Year Plan (Chapter XXVI) is recommended. (Para. 61)

84. The freedom of the Corporations to choose their own consultants should remain unhampered. (Para. 63)

85. Under the Estimates Committee's scheme, the Central Water & Power Commission would be an immense organisation and it is doubtful whether the economy in designing and planning visualised by the Estimates Committee would be achieved in actual practice. (Para. 61)

86. When large projects are sanctioned self-sufficient organisations for designing are necessary. (Para. 62)

87. We suggest that only substantial deviations from sanctioned projects should be reported to Government. (Para. 64)

Major changes in the design and in the scope of the work should be avoided as far as possible, but if absolutely unavoidable, Government's prior sanction must be obtained. This can be achieved by the issue of direction under section 48 of the Act. (Para. 64).

88. The provision that the Corporation shall be treated as a company for purposes of the Land Acquisition Act is unsatisfactory. The better course would be to treat the Corporation as a 'Local Authority'. (Para. 68)

89. The Corporation should have the right to question in suitable cases the correctness of the Collector's award by a reference to the court under section 18 of the Land Acquisition Act. (Para. 69)

90. The Corporation may employ, for the purpose of acquiring waste land, the law prevailing in the two States of Bihar and West Bengal regarding acquisition of waste lands. (Para. 70)

91. The DVC Act and the Land Acquisition Act should be amended in its application to the Corporation. (Para. 71)

Chapter IX—The Organisational Set-up of the DVC

92. There is too much centralisation in the Corporation's methods of administration. While the Corporation should concern itself with policy matters and broad features of general administration, supervision and control, there should be generous delegation of power at all levels indicating both well-defined responsibility and adequate powers. (Para. 11)

93. The present arrangement for coordination between the various departments of engineering is working satisfactorily. (Para. 13)

94. The Corporation might consider whether the post of the Engineer-in-charge, Barrage and Irrigation, carrying a salary of Rs. 2,500 p.m. is absolutely essential. (Para. 15)

95. It should be considered whether in projects of this magnitude well qualified quantity surveyors should not be employed. (Para. 16)

96. It should appear that the staff posted on Konar is excessive. (Para. 17)

97. We are in complete agreement with the recommendations of the Estimates Committee made in paragraphs 115, 118 and 122 of their Fifth Report. (Para. 22)

98. The Corporation has been encouraging local talent; they should appoint non-Indians wherever such appointment is considered necessary but the appointment should be for a minimum period. (Para. 23.) The Central Government should be kept informed of the proposals for appointment of foreigners but their previous approval is not necessary. (Para. 24)

99. The Soil Conservation Department should be placed under a first rate specialist. (Para. 25)

100. A high-ranking social worker with some knowledge of economics should assist the Corporation in the development of the valley. In this matter, the advice of Advisory Committees composed of local leaders and cooperation of the State Governments, Extension Service and local authorities should be sought. (Para. 26)

101. The Chief Electrical Engineer's headquarters could be more conveniently located in the Valley. (Para. 27)

102. There does not seem to be sufficient justification for a Deputy Chief Electrical Engineer. (Para. 27)

103. The absence of a law division in the Corporation office is a serious omission and should be supplied without delay. (Para. 28)

104. The procedure prescribed for recruitment and promotions of the Corporation's employees is generally satisfactory. (Para. 29)

105. All the three members of the Corporation should sit on the Selection Board when appointments carrying pay of Rs. 1,000 p.m. and above are under consideration. (Para. 30).

106. A system of 'merit awards' based on objective tests should be introduced as an incentive to good work. (Para. 33)

107. The headquarters of the Corporation should be located at Maithon as early as circumstances permit. (Para. 38)

108. The Corporation should engage the services of a reputed firm of efficiency experts to go into the question of the staff and their efficiency. (Para. 41)

APPENDIX I

COPY OF GOVERNMENT OF INDIA, MINISTRY OF IRRIGATION AND POWER,
RESOLUTION No. DW. 10, DATED THE 20TH SEPTEMBER, 1952 (as
amended up-to-date).

RESOLUTION

No. D.W. 10. Pursuant to the recommendations made in the Fifth Report (1951-52) of the Estimates Committee of Parliament, the Government of India have decided to set up a Committee to examine and report on the various points at issue relating to the execution of the Damodar Valley Project, and to make suitable recommendations with a view to achieving the most economical and expeditious development of the Damodar Valley.

2. The Committee will consist of the following:—

- (i) Shri P. S. Rau, I.C.S., Regional Commissioner and Adviser to the Government of Madhya Bharat—Chairman.
- (ii) Shri V. D. Dantagi, Additional Deputy Comptroller and Auditor-General—Member.
- (iii) Shri B. N. Lokur, Deputy Secretary, Ministry of Law—Member.
- (iv) Shri G. R. Garg, Director (Irrigation) Central Water & Power Commission—Member.
- (v) Shri B. D. Nanda, Officer on Special Duty, Planning Commission—Member-Secretary.

3. The Committee will examine and make their recommendations to the Government of India in the Ministry of Irrigation and Power on the following:—

- (1) Land reclamation and rehabilitation works undertaken by the Damodar Valley Corporation.
- (2) The changes in the design and construction features of the Konar and Tilaiya Dams; the award of contracts and the rates for various items of works.

* Substituted for 'Shri S. B. Capoor, ICS, Joint Secretary, Ministry of Law' by Irrigation and Power Ministry Notification No. 3c(1)/52-Adm., dated the 17th November, 1952.

- (3) The planning and purchase of stores and equipment for works on Damodar Valley Corporation and the procedure therefor.
- (4) The appointment of a Chief Engineer for the Damodar Valley Corporation.
- (5) The adequacy of the Damodar Valley Corporation Act, 1948, and the organisational set-up of the Corporation.

†4. The Chairman of the Committee will work part-time on the Committee. The other members will work whole-time on the Committee. The Committee will commence work immediately and submit its report within two months.

* Inserted by Irrigation and Power Ministry Resolution No. 30(1)-Adm/52, dated the 20th January, 1953.

† Substituted for 'The Chairman and the other members of the Committee will work whole time on the Committee' by Irrigation and Power Ministry Corrigendum No. 30(1)/52-Adm.; dated the 14th/25th November, 1952.



APPENDIX II

EXTRACTS FROM THE TWO SIX-MONTHLY REPORTS OF THE FINANCIAL ADVISER OF THE DAMODAR VALLEY CORPORATION FOR THE PERIODS ENDED (I) 31ST JULY, 1951, AND (II) 31ST JANUARY, 1952.

"It was originally estimated on the basis of preliminary investigations that the cost of reclamation of waste land will amount to Rs. 380 per acre approximately and the cost of houses will be about Rs. 3 per sq. ft. of covered area and provision was accordingly made in the estimates. Recent cost accounting shows that waste land reclaimed is costing about Rs. 600 per acre against the original estimate of Rs. 380. There is also likely to be about 50 per cent. increase on the cost of buildings."

* * * * *

"While all possible attempts are being made to reduce expenditure, it is for consideration whether for reasons of economy, the declared policy in this respect should be modified to the following extent:

- (a) displaced villagers who are willing to take cash compensation instead of land for land and house for house may be given the cash value of their present houses and holdings;
- (b) in respect of others who insist on having land for land and house for house, they may be given land and houses, not necessarily at the vicinity of their present villages but at other convenient places in the valley where lands could be reclaimed at a considerably cheaper cost. (It is understood that at a distance ranging from 60 to 100 miles from the present villages, lands are available which can be reclaimed at a much cheaper cost);
- (c) construction of houses and the provision of amenities should be on a more moderate scale not exceeding those which are at present enjoyed by the villagers.

The matter should be placed before the Participating Governments at an early date for a fresh directive."

* * * * *

- (ii) "On the basis of actual maintenance, working hours and life of machines (as per schedule of the U.S.A. Bureau of Internal

Revenue adopted by the Corporation) the cost of reclamation has been worked out to be:

Reclamation of Dhan land	Rs. 482 per acre
Add—	
Green manuring	Rs. 68 „ „
Cost of acquiring waste land and incidental cost in connection with land acquisition	Rs. 55 „ „
	<hr/>
	Rs. 605 per acre approximately.

The cost of reclamation of Tanr land is about 1/3 of the cost of reclamation of Dhan land.

The cost of houses now comes to about Rs. 4 per sq. ft. of covered area.”



APPENDIX III

COPY OF D.O. No. DVCC-1, DATED THE 15TH OCTOBER, 1952, FROM SHRI P. S. RAU, I.C.S., CHAIRMAN, DVC COMMITTEE TO SHRI A. N. KHOSLA, I.S.E., ADDITIONAL SECRETARY TO THE GOVERNMENT OF INDIA, MINISTRY OF IRRIGATION AND POWER, NEW DELHI.

We have been studying the terms of the Resolution appointing the Committee and have certain doubts in regard to them which we have discussed with you in detail. We should be grateful if you would kindly clarify the points raised which I proceed to summarise below:

The preamble recites that my Committee has been appointed in pursuance of the recommendations made by the Estimates Committee and we have been invited "to make suitable recommendations with a view to achieving the most economical and expeditious development of the Damodar Valley". Paragraph 3 of the Resolution sets out the terms of reference of the Committee. The question arises as to the relation between the Estimates Committee's report and the matters mentioned in the terms of reference. We feel that we are called upon to report on the Estimates Committee's recommendations only in so far as they fall within the purview of the terms of reference. Those not so covered should be left out. To make my meaning clear see paragraph 55 of the Estimates Committee's Report where certain financial forecasts have been given and the Estimates Committee proceeds to recommend that "a thorough investigation to be made to arrive at as near a correct figure as possible". Secondly in paragraph 36 the Committee recommends an examination of the figures of the cost of production of power. We take it that as neither of these points is covered by the terms of reference they are beyond the scope of our enquiry. We should be grateful for confirmation.

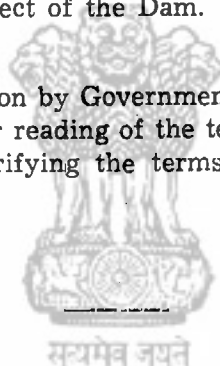
2. The first paragraph of the Resolution also expects the Committee to make suitable recommendations with a view to achieving the most economical and expeditious development of the Damodar Valley. Here again, the Committee presumes that they need not go beyond their specific terms of reference. For example, the terms of reference confine the investigations in regard to the changes in the design and construction features to the Konar and Tilaiya Dams. It is, therefore, presumed that the Committee need not investigate any changes made in the Maithon and Panchet Hill Dams, or any other work.

3. The terms of reference required the Committee to examine and make recommendations on the land reclamation and rehabilitation works undertaken by the D.V.C. It is presumed that for finding out the real intention, the Committee may refer to the Estimates Committee's Report, paras. 28 and 42 of which are relevant, and direct its investigations only on the points raised in those paragraphs.

4. The terms of reference require the Committee to examine the changes in the 'design and construction features of the Konar and Tilaiya Dams, the award of contracts and the rates of various items of work'. It is not quite clear to the Committee what "construction features" mean. It is presumed that it would be sufficient if they undertake an examination of the changes in the design and construction of the Konar and Tilaiya Dams.

It is understood that the work on the Tilaiya Dam is being done departmentally. If so, the question of award of contracts and the rates do not arise in respect of the Dam. We assume that only the Konar Dam is intended.

5. Pending a clarification by Government, we are proceeding with the work according to our reading of the terms of reference as given above. Early orders clarifying the terms of reference may please issue.



COPY OF D.O. LETTER No. 40(11)-ADM./52, DATED THE 10TH NOVEMBER, 1952, FROM SHRI T. SIVASANKAR, I.C.S., JOINT SECRETARY, MINISTRY OF IRRIGATION AND POWER, NEW DELHI, TO SHRI P. S. RAU, I.C.S., CHAIRMAN, DVC COMMITTEE, NEW DELHI.

Will you kindly refer to your D.O. letter No. D.V.C.C.1, dated the 15th October, 1952, regarding the terms of reference of the D.V.C. Committee?

The presumptions made in paras. (1), (2) and (4) of your letter are confirmed. As regards para. (3), the investigations of the Committee may be directed not only to the points mentioned in paras. 28 and 42 of the Estimates Committee's report but also to the points dealt with in the two six-monthly reports of the Financial Adviser of the Corporation. Copies of the second report of the Financial Adviser have already been furnished to you. A copy of the first report is attached.

APPENDIX IV

Witnesses examined by the Damodar Valley Corporation Enquiry Committee.

S. No.	Date	Name of witness
1	24-10-1952	Shri H. N. Ray, I.C.S., Deputy Secretary, DVC.
2	24-10-1952 5-12-1952	Shri N. R. Chakravarti, Officer on Special Duty and ex-Financial Adviser, DVC.
3	25-10-1952	Shri S. N. Srivastava
4	25-10-1952	Shri B.C. Mallick
5	27-10-1952 28-10-52 29-10-52	Chairman, Members, Financial Adviser and Secretary, DVC.
6	31-10-1952 1-11-1952 27-12-1952 28-12-1952 17-1-1953	Mr. A. M. Komora, Chief Engineer, DVC.
7	1-11-1952 6-11-1952	Shri M. N. Das, Construction Superintendent (Maithon) and Superintending Engineer (Tilaiya), DVC.
8	3-11-1952	Shri C. S. Tirumal Rao Saheb, Superintending Engineer (Konar), DVC.
9	4-11-1952	Mr. H. H. Levonian of Kuljian Corporation.
10	4-11-1952	Mr. K. Mueller, Resident Engineer at Konar of Messrs. Gruner Brothers.
11	4-11-1952	Shri H. B. Patel, Director, Patel Engineering Company.
12	7-11-1952 23-12-1952 24-12-1952	Shri K. S. V. Raman, I.C.S., Director, Rehabilitation and Development, DVC.
13	6-11-1952	Shri A. D. Mukherji, Superintending Engineer (Hydro-Electric), DVC.
14	13-11-1952 17-11-1952 21-11-1952	Sardar Man Singh, I.S.E., Member, Central Water & Power Commission.
15	14-11-1952 16-11-1952	Shri S. Ratnam, Joint Secretary, Ministry of Finance.
16	15-11-1952	Dr. M. N. Saha, M.P.
17	26-11-1952	Shri K. R. Patel of Messrs. Associated Exports Imports Corporation
18	4-12-1952	Representatives of the Engineering Association of India.
19	5-12-1952	Shri S. N. Mozumdar, I.C.S., Chairman, DVC.
20	12-12-1952	Shri R. D. Dhir, I.S.E., Director, Central Water & Power Commission.
21	15-12-1952	Shri K. L. Rao, Director (Designs), Central Water & Power Commission.
22	27-12-1952	Dr. B. C. Guha, Member, DVC.
23	6-1-1953	Mr. F. F. Feorgusson, ex-Engineer-in-Charge, DVC.
24	9-1-1953	Shri Kanwar Sain, I.S.E., Member (Designs), Central Water & Power Commission, and Chief Engineer, Hirakud Dam Project, and Member, DVC Board of Consultants.

S. No.	Date	Name of witness
25	9-1-1953	Shri Jagan Nath Misra, Deputy Commissioner, Hirakud Land Organization.
26	12-1-1953 18-1-1953	Mr. Edward Gruner of Messrs. Gruner Brothers.
27	14-1-1953	Shri M. P. Mathrani I.S.E., Chief Engineer, Gandak Valley, Government of Bihar.
28	14-1-1953	Shri J. Kuriyan, Chief Electrical Engineer, Government of Bihar.
29	14-1-1953	Shri H. N. Chatterji, Superintending Engineer, Electricity Department, South Bihar and Chota Nagpur Circle, Government of Bihar.
30	15-1-1953	The Hon'ble Shri Ram Charitar Singh, Minister for Irrigation, Bihar.
31	15-1-1953	Shri S. V. Sohoni, I.C.S., Secretary to the Government of Bihar in the Irrigation Department.
32	21-1-1953	Shri P. K. Bhattacharya, Chief Electrical Engineer, DVC.
33	21-1-1953	The Hon'ble Dr. B. C. Roy, Chief Minister, West Bengal.
34	29-1-1953 30-1-1953	Shri D. L. Mazumdar, I.C.S., Officer on Special Duty, Ministry of Finance.
35	31-1-1953 1-2-1953	Shri A. D. Gorwala, I.C.S. (Retd.).
36	2-2-1953	Shri A. R. Venkatachari, I.S.E. (Retd.) Member, DVC Board of Consultants and Technical Adviser to the Planning Commission.
37	16-2-1953	Shri N. V. Gadgil, M.P., ex-Minister for Works, Mines & Power.
38	27-2-1953	Mr. D. C. Baxter, Design Engineer, DVC.
39	2-3-1953	Shri V. Narahari Rao, Comptroller and Auditor General of India.
40	8-4-1953 9-4-1953	Dr. S. Sen, Secretary, DVC.

N.B.—(i) Shri B. K. Gokhale, I.C.S. (Retd.), ex-Secretary Ministry of Works, Mines & Power, Shri C. C. Desai, I.C.S., ex-Secretary, Ministry of Works, Housing and Supply, Shri N. M. Buch, I.C.S., Director General, Supplies and Disposals and Shri A. N. Khosla I.S.E., Additional Secretary, Ministry of Irrigation & Power, gave their views in writing on questions referred to them.

(ii) The Committee held discussions with Commander and Mrs. Jackson, Shri P. P. Varma, Member, DVC, Shri S. M. Bannerjee, Financial Adviser, DVC., Sarva-Shri Varadarajan and Lal Chand of Hindustan Construction Company, Shri A. Srinivasan, Executive Engineer, Lower Bhavani Project, Shri Dani, Engineer, Bombay Corporation and also Mr. A. de Vajda, ex-Chief Conservation Engineer and ex-Chairman of the Board of Engineers DVC.

APPENDIX V

ESTIMATED USEFUL LIVES AND DEPRECIATION RATES

Average useful life (years)

(Basis: 2,000 hours per year)

Automobiles :						Buckets :					
Light	.	.	.	.	2	Cableway	.	.	.	.	6
Medium	.	.	.	.	3	Clamshell	.	.	.	.	5
Heavy	.	.	.	.	5	Concrete	.	.	.	.	5
Backfillers, Power						Elevator	.	.	.	.	5
Light	.	.	.	.	3	Orange peel	.	.	.	.	6
Medium	.	.	.	.	5	Bail, pivot turnover	.	.	.	.	5
Heavy	.	.	.	.	6	Scraper or drag line	.	.	.	.	6
Tractor	.	.	.	.	5	Buggies :					
Barges :						Concrete	.	.	.	.	3
Steel	.	.	.	.	30	Timber	.	.	.	.	3
Wood	.	.	.	.	25	Building, job, office of storage..					
Batcher Plants :						Bulldozers :					
All steel, domountable	.	.	.	.	10	Grade builders	.	.	.	.	8
Steel frame, wood bin	.	.	.	.	10	Tractor	.	.	.	.	4
Stationary	.	.	.	.	14	Bunkers stone portable with	.	.	.	.	6
Wood frame & wood bin	.	.	.	.	7	screens	.	.	.	.	6
Batch, measuring devices	.	.	.	.	4	Burner equipment, gas & oil	.	.	.	.	12
Benders, bar					5	Cables, wire	.	.	.	.	4
Bending blocks					10	Cableways, cables only	.	.	.	.	3
Bending machines:						Cableway carriage	.	.	.	.	5
Angle	.	.	.	.	15	Camping equipment	.	.	.	.	3
Pipe	.	.	.	.	10	Capetans electric	.	.	.	.	10
Rail	.	.	.	.	10	Cars :					
Bins :						Ballast spreader	.	.	.	.	10
Steel, concrete	.	.	.	.	6	Batch box steel	.	.	.	.	5
Steel	.	.	.	.	12	Boarding and tool	.	.	.	.	20
Wood	.	.	.	.	8	Concrete	.	.	.	.	8
Bin frames, steel	.	.	.	.	6	Derrick, bridge	.	.	.	.	10
Blacksmith shop out-fits, port-	.	.	.	.	4	Dump, steel	.	.	.	.	8
able	.	.	.	.	6	Dump, wood	.	.	.	.	6
Blocks, pulley diffetial	.	.	.	.	10	Flat, steel	.	.	.	.	12
Blowers, mechanical.	.	.	.	.	10	Flat, wood	.	.	.	.	10
Boats :						Hand	.	.	.	.	10
House	.	.	.	.	20	Hopper	.	.	.	.	10
Motor	.	.	.	.	6	Scale	.	.	.	.	10
Boilers :						Skip hoist	.	.	.	.	10
Upright	.	.	.	.	7	Tank	.	.	.	.	20
Locomotive	.	.	.	.	15	Carts, concrete	.	.	.	.	3
Stationary	.	.	.	.	20	Carts, tool (steel)	.	.	.	.	4
Borers (wood) portable	.	.	.	.	3	Cement gun machines	.	.	.	.	4
Boring apparatus, test	.	.	.	.	10	Chains :					
Boxes, mortar and batch	.	.	.	.	3	Hawsers and lines	.	.	.	.	6
Brakes, Bending:	.	.	.	.	22	Power, transmission	.	.	.	.	5
Cornice (sheet metal).	.	.	.	.	3	Channelers, rock	.	.	.	.	6
Breakers ; pavement, pneumatic.	.	.	.	.	3	Chipping and claking tools,	.	.	.	.	3
						pneumatic	.	.	.	.

APPENDIX V—contd.

Chutes, concrete, gravity	2	Craneways :	
Clamps, column form	5	Steel	15
Cleaning machine for exterior of building, steam or sand	15	Wood	10
Compressors :		Crushers, rock :	
Belt driven	10	Portable	8
Electric, portable	8	Stationary	10
Gasoline, portable	6	Cutters :	
Motor, truck unit	5	Bar, power	5
Steam portable	6	Corrugated iron, hand	10
Concrete machine, pneumatic	5	Cutting and welding outfits :	
Concrete mixers :		Portable	4
Electric	5	Davits	15
Gasoline, 3 1/2S, 5s, 7s.	3	Derricks :	
Gasoline, 10s, 14s.	4	Boat	10
Gasoline, 21s, 28s.	5	Circle swing, hand	8
Paving gas	8	Crab—	
Paving steam	8	Hand	10
Steam	8	Power	10
Truck mounted	5	Guy—	
Controllers, motor	1	Steel	12
Conveyors :		Wood	8
Belt, elevating portable	3	Stiffleg—	
Stationary	6	Steel	12
Bucket	6	Wood	8
Cable—		Diggers, clay, pneumatic	3
Drag	6	Drag lines:	
Monorail	15	Electric—	
Chain, portable	6	1/2 3/4 cubic yard	6
Portable	6	1, 1 1/4, and 1 1/2 cu. yards.	8
Scraper	6	2 cubic yards and over	10
Cranes :		Gasoline—	
Bridge and cantilever	20	1/2, 3/4 cubic yard	5
Crawler Electric	5	1, 1 1/4 & 1 1/2 cubic yards	9
2 1/2 5 tons	7	2 cubic yards & over	12
10, 15 tons	9	Steam—	
20 tons and over	9	1/2, 3/4 cubic yard	6
Gas—		1, 1 1/4 and 1 1/2 cubic yards	10
2 1/2, 5 tons	5	2 cubic yards and over	12
10, 15 tons	9	Dredges :	
20 tons and over	12	Clamshell	16
Locomotive gas	7	Dipper	8
Steam—		Hydraulic.	20
2 1/2 5 tons	6	Pipe	10
10, 15 tons	10	Drill Boats	12
20 tons and over	12	Drill points, well	5
Locomotive	10	Drills :	
Dock or wharf, travelling	20	Airdrifter	3
Dragline	10	Electric or pneumatic, hand for wood or metal	5
Universal (gas 2 1/2 to 5 tons) mounted on 10-ton truck	6	Hand, electric	3

APPENDIX V—contd.

Drills—contd.

Rock, electric	3
Jackhammer	3
Steam	5
Traction, well	7
Tripod	7
Tunnel carriage	5
Well	10
Drums for oil (steel)	10

Elevators:

Bucket, stationary	6
Cage (steel tower)	5

Engines :

Blowing	12
Fire	7
Gas	10
Marine	20
Oil	20
Plumbing	14
Steam	11

Excavators :

Cableway, complete	4
Trench, gasoline—	
7-foot depth	6
12-foot depth	6
18-foot depth	8
Trench, steam—	
7-foot depth	8
12-foot depth	8
18-foot depth	10
Trench, vertical boom	5
Wheel or ladder type	5
Extinguishers, fire	3
Fans, exhaust	15
Finishing, machines	4
Floats, bridge (steel)	5
Gorges, gas or oil burning	10

Forms :

Concrete (metal pane)	5
Concrete, supports, adjustable	4

Steel for—

Pavements	4
Pipes	3
Roads	4
Tunnels & conduits	4
Walls	5

Furnaces, metal melting

Coal fired	10
Electric	12
Gas or oil	7

Generator sets :

Steam engine	12
Turbine, headlight or flood light	4
Gin poles (steel)	10
Gradebuilders (bulldozers)	8

Graders :

Blade, road—	
7-8 foot blade	4
9-10 foot blade	5
Over 10-foot blade	8
Elevating	8
Forn, subgrade planners	6
Rooters, wheel	5

Grinders :

Metal surface	15
Saw filers and setters	1
Surface, concrete	4

Hammers :

Electric	3
Pneumatic riveting	3
Harness	4
Heaters, asphalt, tar and pitch kettles	4
Helmets, gas and diving suits & Equipment	10

Hoists :

Air, electric, or steam	8
Chain	6
Electric monorail or post	5
Gas	6
Hand power	8
Slew—	
Electric	8
Steam	12
Holders on pneumatic	4
Horses	5

Hose :

Fire, linen or rubber lined	
cotton	5
Metal, flexible	10
Oil	5
Reel or cart	10
Rubber, air, steam or water	10
Inundators, batch	4

Inland craft:

Graders, hydraulic	7
Quarter boats	10

Jacks:

Hydraulic	8
Rail	25
Ratchet	8
Screw	5
Steamboat, push and pull	3
Jibs, steam	17
Jointers, bench, electric, steam, or gas	5

APPENDIX V—contd.

Ladders :		Pipe :	
Rope, wood rungs	2	Black or galvanized	4
Steel	3	Wood	5
Ladles metal,	7	Wood and steel combination	6
Lathes :		Pipe lines and fittings, for float- ing dredges	10
Metalworking	15	Pit and quarry plant	6
Woodworking	17	Planners :	
Launches, gasoline	10	Metalworking	15
Levee construction equipment		Woodworking	20
Drag lines	8	Plows :	
Shovels	8	Furrow	3
Towel excavators	12	Rooter	6
Life-saving equipment	10	Pontoons	20
Light plant	4	Presses, drill	12
Lighters	22	Pumping units :	
Loaders, bucket		Electric—	
Crawler	5	Centrifugal	6
Portable	5	Diaphragm	6
Stationery	6	Piston	6
Locomotives battery	4	Gas—	
Locomotive, industrial		Centrifugal	6
Diesel	10	Diaphragm	6
Electric	16	Highway contractor's Pump	4
Gas—		Piston	5
Up to 10 tons	8	Steam, centrifugal	10
10 to 20 tons	15	Pumps :	
Over 20 tons	20	Air lift	10
Steam—		Centrifugal	6
Upto 10 tons	8	Humdinger	6
10 to 20 tons	18	Impulse	6
Over 20 tons	20	Hydraulic	15
Locomotive, standard gauge	30	Oil	10
Magnets, lifting	15	Steam piston unit	6
Milling machines	15	Testing for pipe lines	15
Mixers ; portable mortar	3	Punches, hydraulic	20
Less than 1/3 cubic yd.	6	Punches for steel power	15
Over 1/3 cubic yard	8	Racks, storage for pipe and	
Caterpillar	8	Steel :	
Motors :		Steel	20
AC and DC	12	Wood	15
Large	10	Rail, steel	10
Medium	8	Razing, equipment, for build- ings.	8
Small	5	Reamers :	
Hydraulic	5	Electric	3
Pneumatic	5	Pneumatic	3
Mowers, right of way	5	Riveters, pneumatic	5
Mules	5	Rollers :	
Pile drivers :		Concrete finishing (steel)	10
Barge	8	Road, gas	10
Railroad outfits	10	Road, steam	10
Steam, on skids	10	Rolls, ridge	5
Track	12	Rowboats	6
Pile hammers, steam or air :		Sand-blast outfits	10
Heavy	10	Sawmills, portable	10
Light	4		
Medium	5		

APPENDIX V—concl'd.

Saws :		Towers :	
Band, cut off and rip power	10	Cableway—	
Hand, electric and pneumatic	3	Steel	6
Saws and woodworkers		Wood	3
Steel frames	10	Steel boom with counter weights	5
Wood frames	5	Tracks, industrial, portable	6
Scales, large, track and wagon	20		
Scarifiers :		Tractors :	
Attachements	4	Electric—	
Blocks, steerable	5	3-ton	3
Drag, all steel	4	5-ton	5
Grader type	4	10-ton	6
Scows	25	20-ton	8
Scows, dump	25		
Scrapers :		Gas or steam—	
Blade, carryall	6	3-ton	4
Fesne or Morman	2	5-ton	6
Rotary	4	10-ton	8
Slip	2	20-ton	10
Wheel	5		
Screens and bunkers, for gravel pits only	5	Trailers :	
Screws, revolving	6	Dump —	
Sharpeners, drill	8	Steel	10
Sheers, for steel, hand	10	Wood	10
Shores, adjustable	4	Platform, wood	4
Shovel attachements, for cranes	6	Drop platform, heavy duty	5
Shovels :		Transformers, car	10
Electric or gasoline, crawler or wheel—		Trenching machines, (See Excavators).	
1/2, 3/4 cubic yard	5		
1, 1 1/4, 1 1/2 cubic yards	6	Trucks, auto :	
2 cubic yards and over	8	General purpose or dump—	
Steam crawler or wheel—		1/3-2/3 cubic yard	3
1/2, 3/4 cubic yard	7	1-1 2/3 cubic yards	5
1, 1 1/4, 1 1/2 yards and over	8	2 cubic yards and over	8
Railroad, steam	10	Tugs, screw-propelled, steam	25
Tunnel	4	or gas	
Sputing plants, complete, concrete	4	Turntables, industrial railway	4
Spraying equipment, paint	12	Vises	5
Spreaders, stone :		Wagons :	
Hopper wagon	5	Dump—	
Steel box	5	Steel	6
Steamers, paddle wheel	30	Wood	6
Switches :		Farm—	
Portable	4	Heavy	10
Stationary	5	Light	10
Tampers, backfill pneumatic	3		
Tamping machines	10	Road oilers, tanks, steel Tank or sprinkler—	
Tanks :		Steel	10
Gasoline, storage	6	Wood	8
Relay	6	Washers, gravel	3
Water or air, storage (steel).	10	Welding outfits, acetylene or electric	10
Water storage (wood).	14	Wheelbarrows	2
Tarpaulins and tents	3	Winches, electric and pneumatic	10
Threading and cutting machines		Wire and cables :	
Pipe	10	Electric	6
Ties :		Flexible, steel armored	8
Steel	12		
Wood	6		
Tongs, chain	4		

[APPENDIX VI Omitted]
APPENDIX VII
BENEFITS

Name of Project	Year	Estimated cost	Irrigation Acres	Installed capacity Kilowatts	Remarks
I	2	3	4	5	6
<i>Hirakud</i>					
Original estimated cost as per preliminary project Report.	1947 (June)	47,81,00,000	10,94,953	3,50,000	Preliminary estimate.
Original sanctioned estimate	1948	47,81,00,000	10,94,953	3,50,000	
Revised estimate	1950 (October)	62,59,00,000	10,94,953	3,50,000	Not based on detailed estimates.
Revised estimate	1952 (January)	89,09,00,000	17,35,000 (new area)	2,56,500	Prepared by C. W. & P. C., based on detailed estimates.
	1952 (March)	92,09,00,000	17,35,000 (new area)	2,56,500	C. W. & P. C.'s, 1952 estimate as revised by Advisory Committee.
<i>Tungabhadra Project Madras side</i>					
(a) Irrigation Project					
Original estimated cost	1941-42	5,68,19,000	2,50,000		Based on detailed estimates.
Original sanctioned estimate	1944 (December).	9,92,55,000	2,50,000		Arrived at by applying suitable proportion factors over 1942 estimates without working out details of alterations in design quantities etc.
I Revised estimate	1949 (February).	17,00,00,000	2,50,000		

APPENDIX VII—contd.

I	2	3	4	5	6
					Based on revised quantities and rates.
II Revised estimate.	1952	19,70,00,000	2,50,000		
(b) Hydro-electric Project					
Sanctioned Project	1950	19,70,00,000	..	36,000	
<i>Hyderabad side</i>					
(a) Irrigation Project	1951	23,04,00,000	4,50,000	..	
<i>Bhakra Nangal Project</i>					
Original estimate as per preliminary project	1919	14,44,75,000	15,27,992	Nil	
1939-42 Bhakra Dam Project	1942		14,15,992	*	*Information not available.
Bhakra Nangal Project	1949-50	1,32,90,00,000	35,85,675	3,12,000	
Bhakra Nangal Project I Revision	1951-52	1,56,00,00,000	36,04,275	1,44,000	
Bhakra Nagnal Project I Revision modified.	1953	1,70,00,00,000 approximate	..	2,44,000	
<i>Lower Bhavani Project</i>					
Original estimate	1936	3,12,00,000			
Sanctioned estimate	1947	7,00,00,000			
I Revised estimate . . . . .	..	8,30,00,000	2,07,000	Nil at present	Provides for extension of main canal and for power penstocks to be used later to develop seasonal power of 10,000 Kw.
II Revised estimate	1951	9,02,20,000	..	..
Anticipated actuals	1953	9,50,90,000	2,07,000	..	

Macnkund Hydro-electric Project. (Madras side)

Original estimate as per preliminary project report.	1944	2,29,50,000	..	51,750	} Cost of civil works and power station only included. Cost of sub-stations and transmission lines extra.
Original sanctioned estimate	1946	2,10,50,000	..	"	
I Revised estimate	1948	5,25,24,000	..	"	
II Revised estimate	1949	8,13,56,000	..	"	
III Revised estimate	1953	Under preparation.	..	"	

Damodar Valley Project

Rough preliminary estimate for complete project by Voorduin in preliminary Memorandum

I Revised Estimates for first Phase	1945	55,00,00,000	7,60,000	3,50,000	} Based on detailed estimates.
II Revised Estimates for first Phase	1951	74,98,00,000	10,25,762	2,74,000	
	1952	87,74,00,000	"	2,84,000	

APPENDIX VIII

Draft amendment of section 50 of the Damodar Valley Corporation Act, 1948

"50. Compulsory Acquisition of land for the Corporation.—Any land required by the Corporation for carrying out its functions under this Act shall be deemed to be needed for a public purpose and the State Government shall, at the request of the Corporation, proceed to acquire such land under the provisions of the Land Acquisition Act, 1894 (I of 1894), as modified by the Second Schedule or, in the case of Waste lands, under the provisions of the law in force for acquisition of waste lands".

SECOND SCHEDULE

(See section 50)

Modifications in the Land Acquisition Act, 1894 (I of 1894)

Amendment of Section 3.

(i) After clause (c) of section 3, the following shall be deemed to be inserted, namely:—

"(cc) the expression 'Corporation' means the Damodar Valley Corporation constituted under the Damodar Valley Corporation Act, 1948 (XIV of 1948)".

(ii) After clause (d) of section 3, the following shall be deemed to be inserted, namely:—

"(dd) the expression "local authority" includes the Corporation".

Insertion of new section 10A.

After section 10, the following shall be deemed to be inserted, namely:—

"10A. Enquiry regarding option for compensation in kind.—(1) Wherever any land or house shall have been declared under section 6 to have been needed for the purposes of the Corporation, the Collector or an officer authorised by him in this behalf shall require the persons interested in the land or the house to state whether, instead of a money compensation in respect of such land or house, they may be granted in exchange other equivalent land or house, as the case may be, in any specified local area.

(2) The statement recorded under sub-section (1) shall be conclusive evidence of the option for compensation in kind".

Insertion of section 17A.

After section 17, the following shall be deemed to be inserted, namely:—

“17A. In every case referred to under section 16 or section 17, the Collector shall, upon payment of the cost of acquisition, make over charge of the land to the Corporation and the land shall thereupon vest in the Corporation, subject to the liability of the Corporation to pay any further costs which may be incurred on account of its acquisition”.

Insertions of new section 28A.

After section 28, the following shall be deemed to be inserted, namely:—

“28A. **Reference at the instance of the Corporation.**—If the award in regard to the amount of the compensation is not acceptable to the Corporation, it may, within eight weeks from the date of the award, require by written application to the Collector that the matter be referred by him for the determination of the Court and thereupon the provisions of section 19 to 28 shall apply *mutatis mutandis* to such reference”.

Amendment of section 31.

After sub-section (2) of section 31, the following shall be deemed to be inserted, namely:—

“(2A) If an option in favour of compensation in kind has been exercised under section 10A, the Collector shall, instead of paying a money compensation, grant to the persons interested an equivalent house or land in exchange for the house or land acquired.

Amendment of section 50.

The proviso to sub-section (2) shall be deemed to omitted.

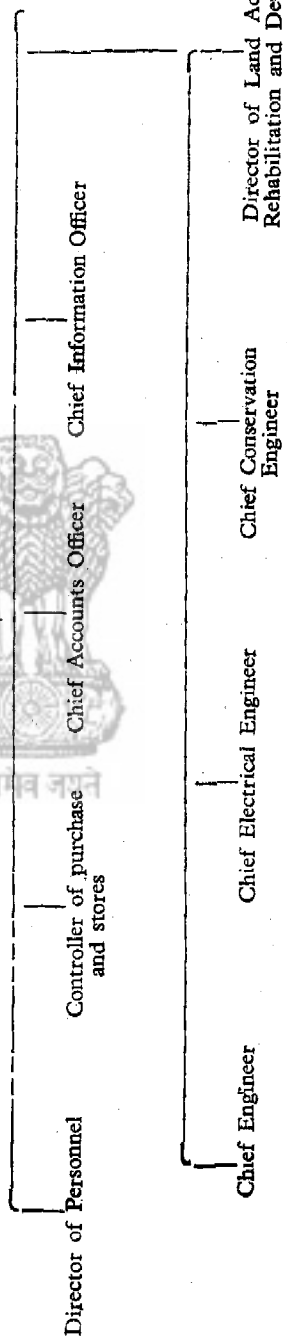
APPENDIX IX

DAMODAR VALLEY CORPORATION ORGANISATION CHART

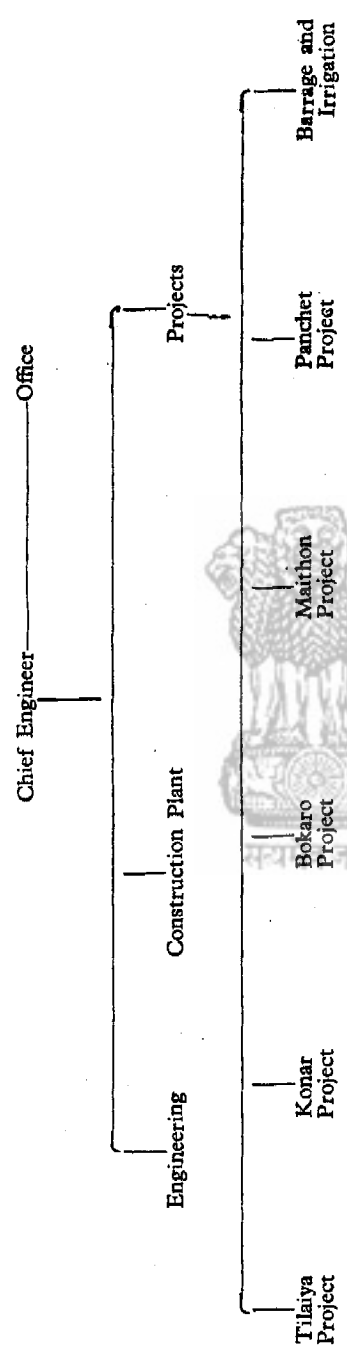
October, 1952

Corporation

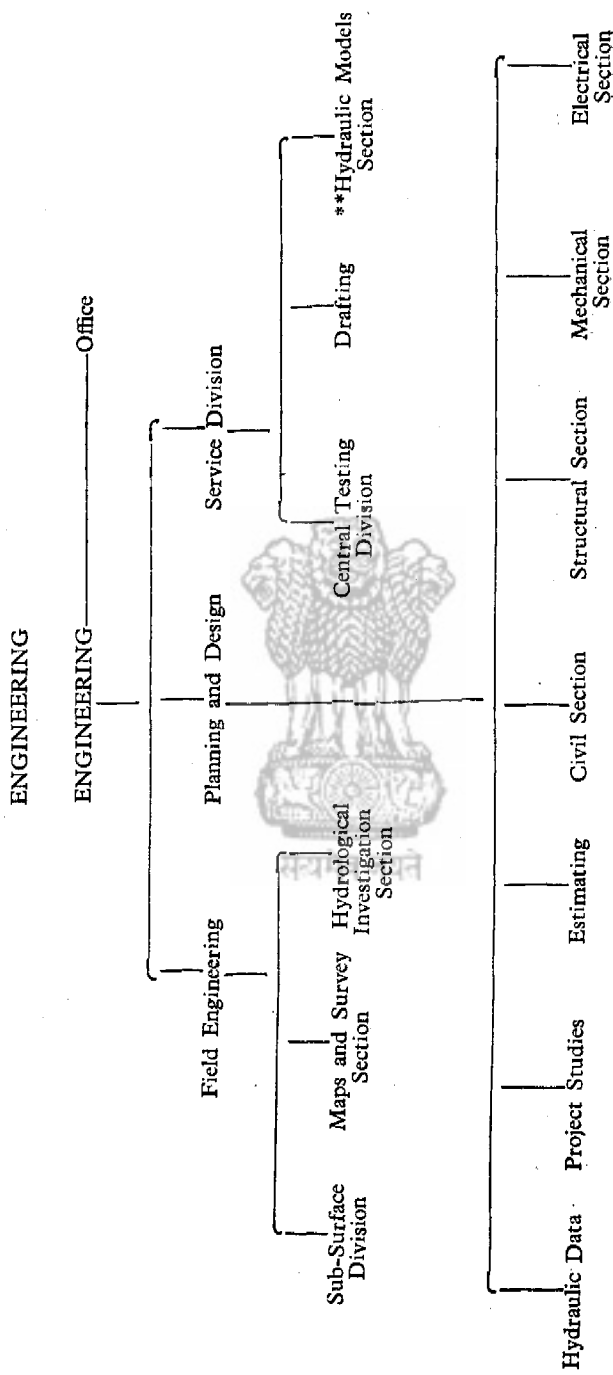
Financial Adviser Secretary



APPENDIX IX—contd.



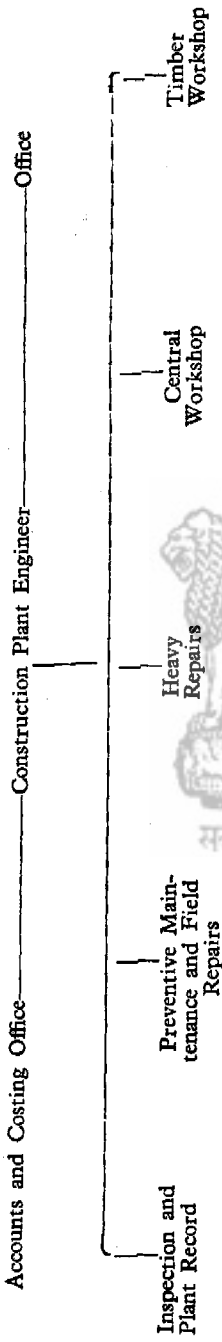
APPENDIX IX—contd.



**Under the Director of River Research Institute, West Bengal.

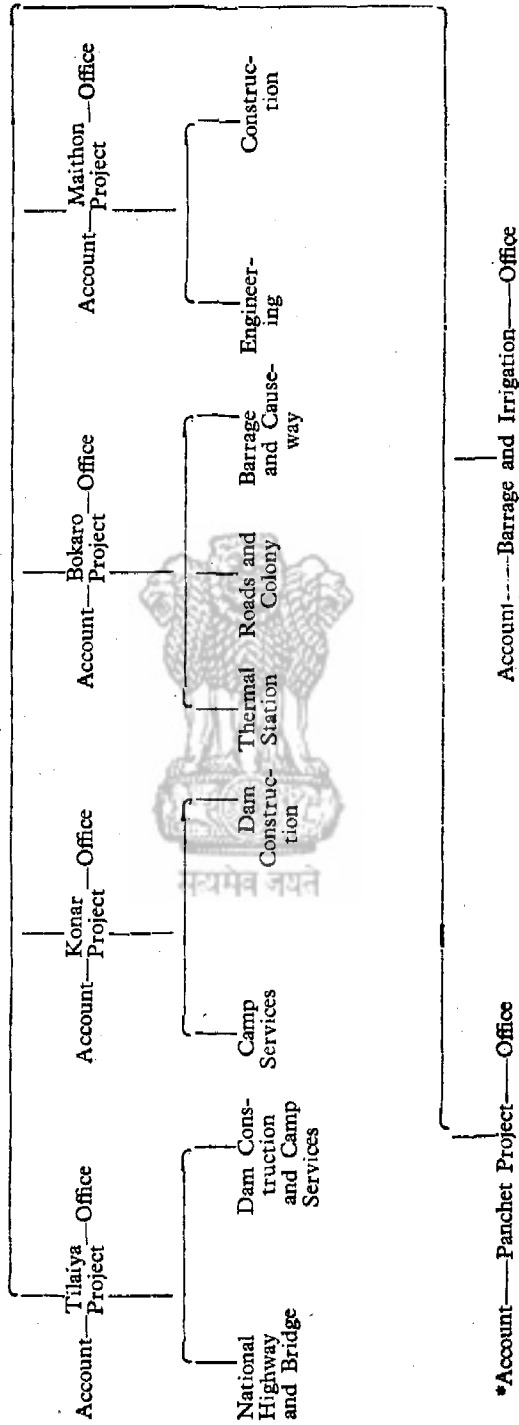
APPENDIX IX—contd.

CONSTRUCTION PLANT



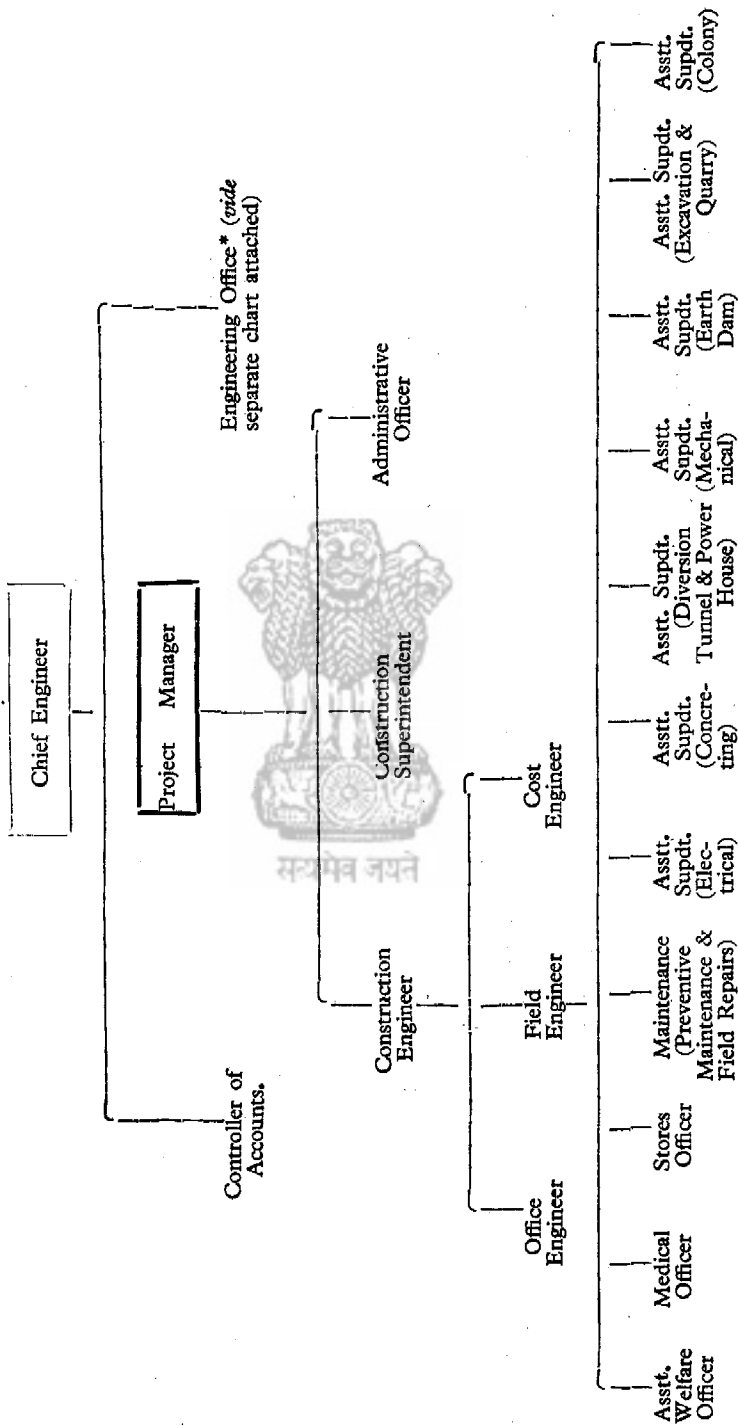
APPENDIX IX—contd.

PROJECTS

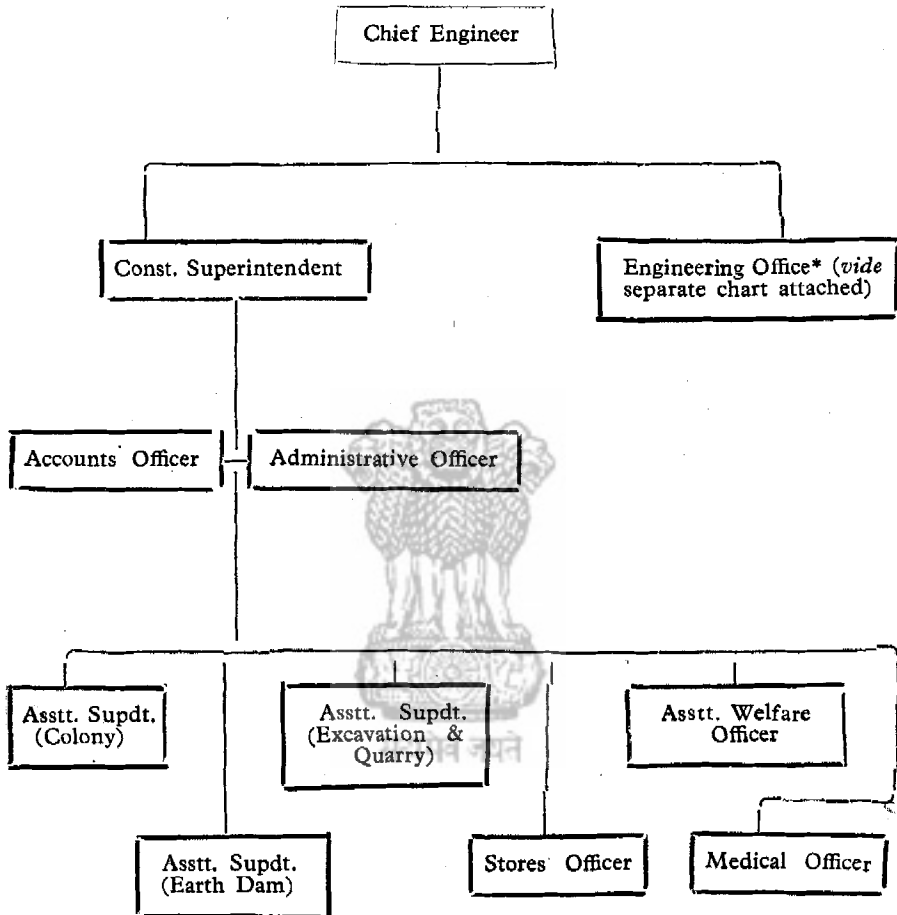


*Accounts controlled by Accounts Office, Maithon.

APPENDIX IX—contd.
ORGANISATION SET-UP OF MAITHON PROJECT

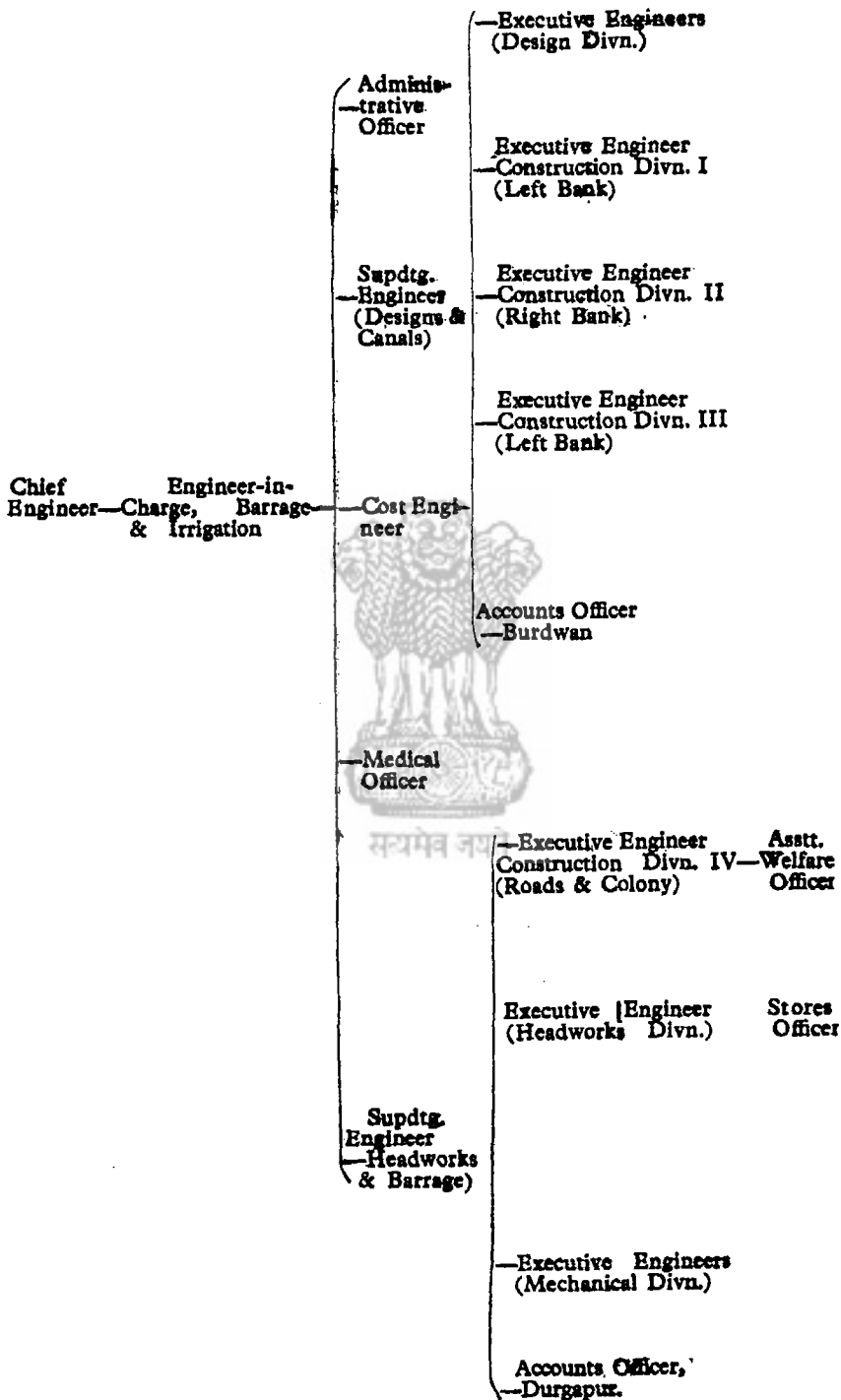


*This office is responsible for Design of both Maithon and Panchet Projects.

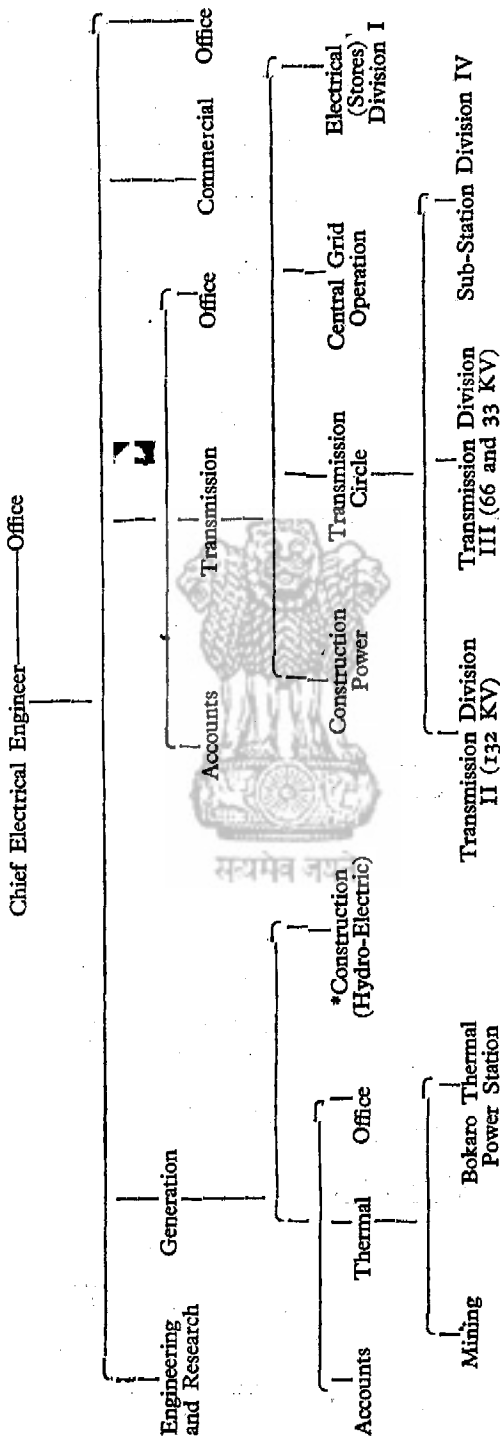
APPENDIX IX—contd.**ORGANISATION SET-UP OF MAITHON PROJECT**

*This office is responsible for design of both Maithon and Panchet Projects.

Appendix IX—contd.



APPENDIX IX—contd.

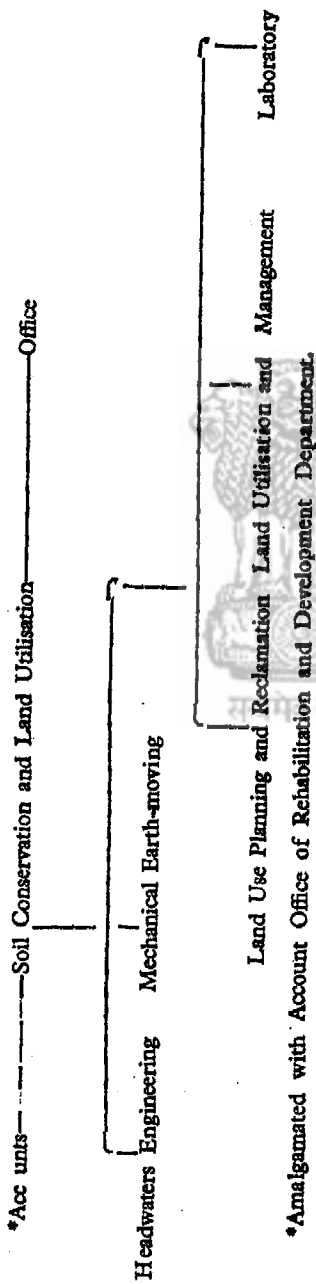


*Accounts and Office jointly with Tilaiya Project.

APPENDIX IX—contd.



APPENDIX IX—contd.



APPENDIX X

ABSTRACT OF D. V. C. ORGANISATION (as on 30th September 1952)

Name of Office	No. of Officers	No. of Staff	Officers drawing Rs. 3,000 and above	Officers drawing Rs. 2,000 to 3,000 p.m.	Officers drawing Rs. 1,300 to 2,000 p.m.
1	2	3	4	5	6
Financial Adviser	3	21	2	...	...
Secretary	8	89	...	1	1
Director of Personnel . . .	4	39	...	1	...
Collector of Purchase and Stores	12	106	...	...	1
Central Accounts Office . .	6	80	...	...	...
Chief Information Officer . .	4	10	...	...	1
Medical Establishment . . .	9	37	...	...	...
Anti-Malaria Unit	2	7	...	...	...
Chief Engineer, Designs, Office etc.	87	324	1	1	2
Geology Division	6	10	...	...	...
Meteorological section . . .	2	15	...	...	...
Construction Plant Engineer and his offices	13	101	...	...	2
Chief Electrical Engineer and his office	28	58	...	2	3
Land Acquisition and Rehabilitation Deptt. . . .	40	278	1	...	...
Soil Conservation Deptt. . .	36	444	...	...	2
Tilaiya Project	21	106	...	...	1
Konar Project	22	93	...	...	1
Bokaro Project	20	148	...	...	...
Bokaro Thermal Station . .	28	20	...	...	2
Maithon	45	183	...	1	1
Panchet Hill	8	40	...	...	1
Barrage and Irrigation . . .	48	353	...	1	1
Electrical Transmission . .	34	246	...	...	1
	486	2,808	4	7	20

Officers drawing between Rs. 1,800 to Rs. 1,300 p. m . . . 51 Nos.

Officers drawing below Rs. 800 p. m. 404 "

Appendix X—contd.

ABSTRACT CLASSIFICATION OF OFFICERS

	Supdtg. Engi- neers and other Officers of equi- valent rank	Ex- Engi- neers and other Officers of equi- valent rank	Asstt. Engi- neers and other Officers of equi- valent rank	Other Officers pay above Rs.1,000	Other Officers pay between Rs.500— 1,000	Other Officers pay between Rs.200— 500	Total
	1	2	3	4	5	6	7
Headquarters . . .	...	...	...	1	11	20	32
Chief Engineer							
Engineering . . .	2	10	62	...	...	1	75
Construction . . .	8	24	138	...	8	22	201
Chief Electrical Engineer							
Headquarters . . .	2	4	17	...	...	...	23
Bokaro Thermal Station	1	14	15	...	...	4	34
Tilaiya Hydro-electric	1	...	2	...	...	...	...
Transmission . . .	3	6	38	...	1	2	...
Soil Conservation Deptt	2	6	26	...	...	3	...
Rehabilitation and Deve- lopment Deptt. . .	...	1	...	...	3	13	17
TOTAL . . .	19	65	298	1	23	65	473

Heads of Departments and Senior Officers in headquarters.

Appendix X—contd.

ABSTRACT CLASSIFICATION OF STAFF

	Head- quarters	Chief Engineer	Chief Electrical Engineer	Soil Con- servation	Rehabili- tation and Develop- ment Deptt.	Total
Technical						
Construction foreman and head drafts- man . . .	...	10	12	1	...	23
Overseers erector, shift-in-charge and purchase Inspector	2	196	43	7	4	252
Research Asstt., Soil Conservation Staff etc. . .	...	54	...	42	1	97
Surveyor . . .	...	47	7	25	...	79
Inspector of Survey and Kanugo . . .	...	...	...	1	15	16
Estimator draftsman tracers, ferro- printer etc. . .	...	107	18	10	12	147
Gauge reader . . .	...	34	...	...	...	34
Diamond drilling staff and other artificer	...	17	...	...	...	17
Technicians and operators of each moving machineries	1	63	39	127	6	236
Drivers . . .	8	59	21	20	9	117
Class IV staff (Khalasis, cleaner greaser, amin, etc.)	2	121	14	109	68	314
TOTAL .	13	708	154	342	115	1,232

Appendix X—contd.

NON-TECHNICAL STAFF

	Head- quarters	Chief Engineer	Chief Electrical Engineer	Soil Con- serva- tion	Rehabili- tation and Develop- ment Deptt.	Total
Non-Technical						
Junior Superintendent	2	...	2	...	...	4
Accountant . . .	12	37	9	10	2	70
Personal Assistant, Stenographer,						
Grade I Assistant.	80	72	35	9	11	207
Grade II Assistant .	89	178	44	40	29	380
Grade III Assistant Steno-Typists, Typist .	59	151	34	20	24	288
Telephone Operators etc.	2	6	4	...	...	12
Medical Assistant, Malaria Inspector, Nurse]	1	11	...	...	...	12
Compounder and Dresser	2	17	...	...	...	19
Class IV (daftry, peon, chowkidar etc.)	92	248	43	13	49	445
TOTAL .	339	720	171	92	115	1,437

